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IF WIRE LINE COULD ONLY *talk*...

Ordinary Wire Line: "Don't you ever get tired?"
Macwhyte PREformed: "Naw. We Macwhytes have terrific resistance to internal friction and fatigue. We live long, too . . . because we're specially lubricated, made from the finest steels, and because we get a chiropractic adjustment just before we leave the factory."

Ordinary Wire Line: "Oh-h-h, my back's about to break! I've been running in circles over sheaves and drums all day long. Oh-h-h . . ."
Macwhyte PREformed: "Buck up fella, you'll get over it. Where you working?"

Ordinary Wire Line: "What d'ya mean, a chiropractic adjustment?"
Macwhyte PREformed: "That means 'made into perfect PREformed Macwhyte Wire Line.' Once th' factory OK's us we're ready for a long life of heavy duty. Believe me, brother, I earn money for the fellow who buys me... I'm built to take it!"

Ordinary Wire Line: "On that Rotary Rig. Started this morning, and I'm all worn out. Say, you look like you never worked or worried. How do you do it?"
Macwhyte PREformed: "Me? Say, I work plenty, pal... been working on that job next to you for weeks. Night shifts, too.
And I feel fine."

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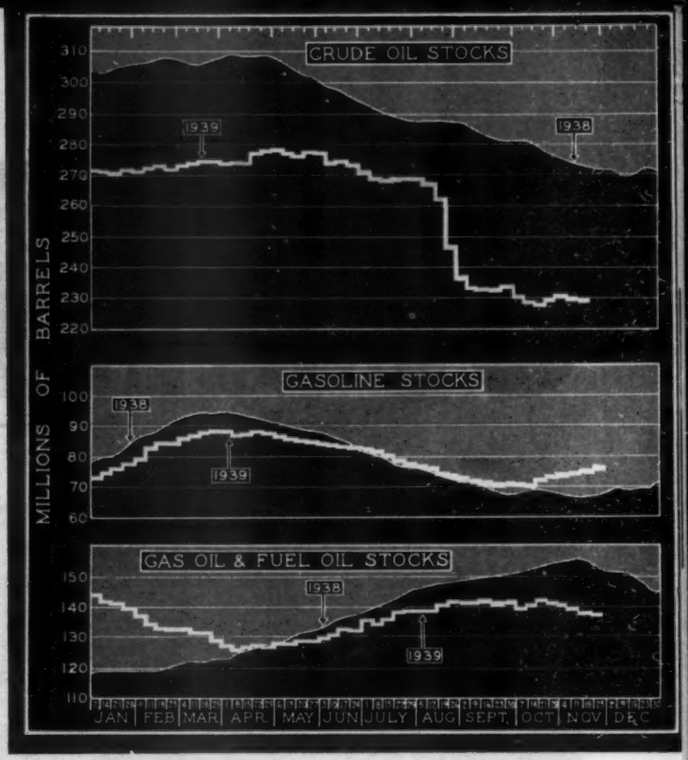
Trends

Dollar Position in Foreign Exchange Factor in Markets



DEVELOPMENTS which have nothing to do directly with petroleum supplies and demand are becoming increasingly important in the industry's markets. The continued weakness in the British pound sterling, with the probability that it will go lower in relation to the dollar, is disturbing to those engaged in export trade. The pound sterling is now quoted around $3.93, about 20 per cent under par and 15 per cent under the rate that existed during the period immediately preceding the war.

CRUDE PRODUCTION *3,815,745 bbl. daily average — up 219,170 bbl. One year ago 3,267,994 bbl.*

CRUDE STOCKS *229,835,000 bbl. as of November 18—down 202,000 bbl. One year ago 271,955,000 bbl.*

GASOLINE STOCKS *75,595,000 bbl. as of November 25 — up 1,899,000 bbl. One year ago 69,492,000 bbl.*

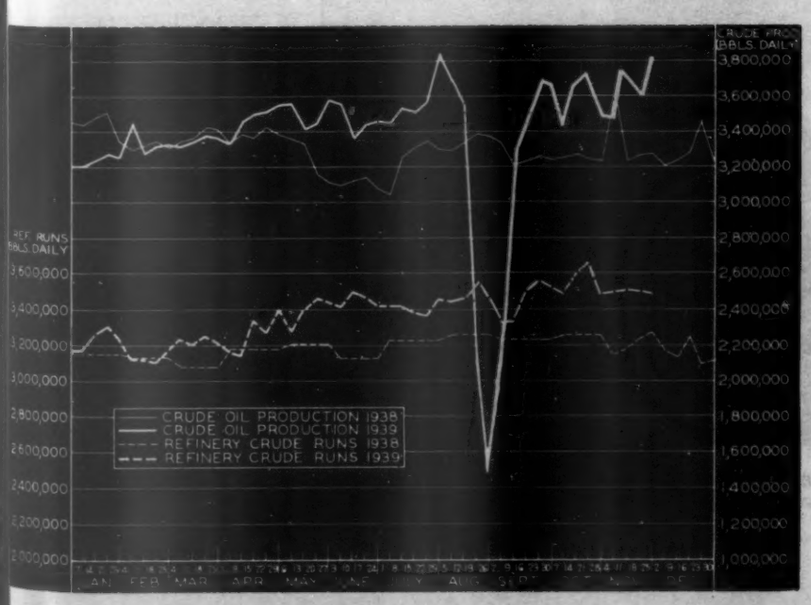
GAS AND FUEL-OIL STOCKS *138,064,000 bbl. as of November 25—down 894,000 bbl. One year ago 153,634,000 bbl.*

REFINERY RUNS *3,510,000 bbl. daily week ended November 25 — down 5,000 bbl. One year ago 3,244,000 bbl.*

It is apparent that this currency relationship is tending to shift oil buying of the French as well as the British to oil countries where the British currency is nearer par than its present relationship to the dollar. It has increased the attractiveness of keeping oil trade within the British Empire and means in effect that current prices on oil supplies from Iran, Iraq, and Trinidad are lower than those in this country. It also tends to give an advantage to most of the South American oil supplies in sales to Canada, Great Britain, France, and certain neutral countries in Europe where trade balances and currency relationships favor the pound over the dollar. One large exporter explains that while this situation obtains the trend will be to reduce oil purchases from this country to a minimum.

The confusion that has developed since the passage of the neutrality act has not been favorable to export and coastwise shippers in this country. Tanker rates have increased, and the tendency has been for buyers to attempt to secure lower rates from refiners as a partial offset to the higher transportation costs. Current tanker rates from the Gulf Coast to East Coast points are around 1 cent per gallon. This situation, more than any other development, explains the trend toward higher quotations for petroleum products in that area.

In export movements the prohibition against shipments in American tankers has worked so far to the advantage of oil countries where shipments are not dependent on Ameri-


CRUDE PROD. BBLS. DAILY
REF. RUNS BBLS. DAILY
CRUDE OIL PRODUCTION 1938
CRUDE OIL PRODUCTION 1939
REFINERY CRUDE RUNS 1938
REFINERY CRUDE RUNS 1939

DAILY AVERAGE PRODUCTION FOR WEEK

	Nov. 25, 1939	Bur. Mines Nov. est. of demand	Nov. state allowables	Nov. 18, 1939
Oklahoma City	105,900	.....	.....	109,200
Seminole fields	38,775	.....	.....	38,450
Remainder of state	282,550	.....	.....	283,425
Total Oklahoma	427,225	429,000	429,000	431,075
East Texas	495,595	.....	.....	398,446
West Texas	262,137	.....	.....	224,349
North Central Texas	130,493	.....	.....	112,143
Texas Panhandle	82,000	.....	.....	77,648
East Central Texas	95,259	.....	.....	91,245
Gulf Coast Texas	385,989	.....	.....	342,544
Southwest Texas	101,156	.....	.....	84,650
Total Texas	1,552,629	1,444,000	1,396,225	1,331,225
North Louisiana	68,830	.....	.....	67,395
Gulf Coast Louisiana	202,698	.....	.....	199,048
Total Louisiana	271,528	259,000	258,994	266,443
California	613,850	596,000	599,000	628,500
Kansas	184,850	169,000	170,600	179,500
Arkansas	67,290	57,000	.....	70,710
Eastern fields	102,850	106,000	.....	103,200
Illinois	332,175	303,000	.....	327,510
Michigan	64,638	63,000	.....	64,632
New Mexico	113,080	111,000	111,000	110,960
Rocky Mountain area	85,630	83,000	.....	82,760
Total United States	3,815,745	3,620,000	.....	3,596,575

can bottoms. It is assumed that conditions in regard to shipping will be gradually worked out so that more normal conditions will prevail again, but in the meanwhile the American producer and refiner are handicapped in carrying on foreign business.

In domestic operations production jumped to the second highest weekly level in the history of the industry. The gain reflects the wide variations in Texas production brought about largely by shutdown days. These frequent wide changes in Texas output, with the resulting confusion to the industry within and outside that state, are increasing the demand for a proration plan in which the daily production would be uniform throughout the month.

SPARKS . . . FROM THE NEWS

MAJOR IMPORTANCE: The trade treaty of this country with Japan, in effect for many years, expires January 26. What happens in regard to a renewal is of major importance to the oil industry generally—California operators in particular.

UNWANTED RECORD: National crude-oil production last week jumped to within a few thousand barrels daily of an all-time peak. Economists agree that a continuance of this operating policy over the next 60 days means trouble for everyone concerned.

MORE POLITICS: The Venezuelan trade agreement, which provides for lower excise payments on heavy-oil imports, may become a political football. Several oil-state governors, led by Kansas' Ratner, are getting ready to kick it around.

RECOGNITION: Further recognition of the efficiency of the American driller is given in the announcement that Y.P.F. (government owned) will let contracts in this country for the drilling of 100 wells in Argentina next year.

GOOD OLD BRADFORD: After producing 384,500,000 bbl. of oil, the Bradford field of western Pennsylvania is credited with a recovery of only 46 per cent of its potential output. Engineers are given the problem of recovering more, and the test will come after the possibilities of water flooding have been exhausted.

NO PRIVACY: A visitor in Mississippi says that with 50 geophysical parties working in that state, privacy is impossible.

IMPORTANT TEST: Interest centers in the production test at Nebraska's first well. If it produces 50 bbl. daily for 60 days the state will pay owners $15,000.

A REMINDER: Just to remind the industry that it still leads in gusher wells, a Yates pool, West Texas, completion flowed 17,000 bbl. in 12 hours.

QUALITY OUTLET: Aviation demands quality petroleum products, but the quantity is still comparatively small. Car owners in either St. Louis or Boston consume more gasoline than all the airplanes in the United States.

NEW WORD: "Devonian" over the past 2 weeks has become the most used—sometimes misused—word in the vocabulary of the Illinois operators. The discovery well of that pay in the Salem field doubled its production after acidization.

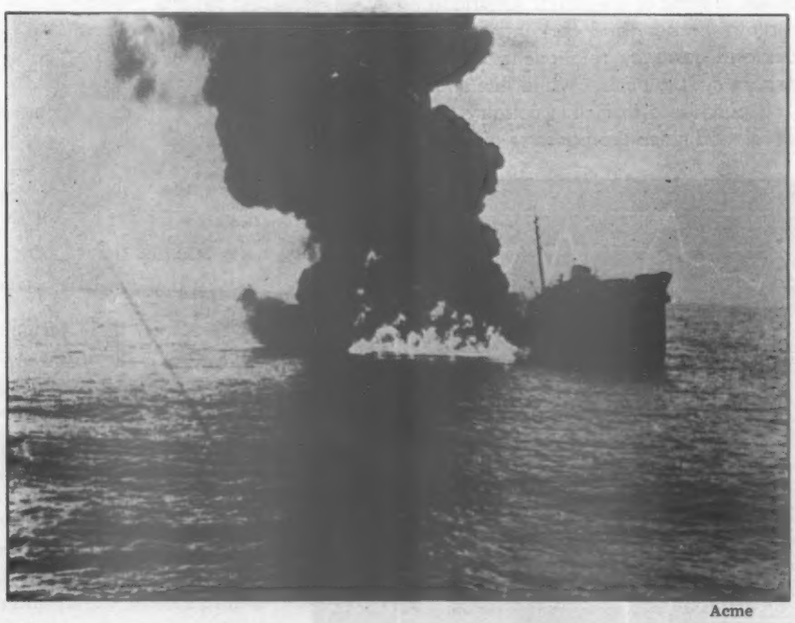
SMALL DOSE: A major eastern marketer has advanced gasoline one-tenth of a cent per gallon. If maintained it will be of more aid to the industry than the recent larger increases which have failed to hold.

FREEDOM: Celebration of Frank Phillips' sixty-sixth birthday was not merely a tribute to a distinguished figure in oil. It was expressive, in these days of fascism, naziism, and communism, of the exuberant satisfaction men feel over living in a country where such a career is possible.

COMMERCIAL: A new process passes from the research and pilot-plant stage with the announcement that a Gulf Coast refinery will build a 7,000-bbl. hydroforming unit.

REALLY DEEP: Plugging back after drilling to 14,528 ft., it was proved this week that any deep production from the Anadarko basin in the Proctor area of western Oklahoma will have to come from deeper horizons.

A TORPEDOED TANKER . . . .



Acme

Blazing wreck of the French tanker Emile Miguet, bound from the Gulf Coast for a French port. The explosion broke the boat in two. Picture made from a rescue ship

Output of Aviation Gasoline Keeps Pace With Needs

By H. STANLEY NORMAN

Anticipating a sharp increase in demand, the industry is now building facilities to increase production of 100-octane motor fuel by some 25 per cent by the latter part of 1940

NEW YORK, Nov. 27.—The latest technique in the commercial manufacture of quality petroleum products may prove a double-edged instrument for the industry. The question now confronting the industry is whether facilities for the production of isooctane and near-equal blending materials from refinery and natural gases are being expanded disproportionately to potential consumptive requirements.

All branches of aviation consumed 113,000,000 gal. of gasoline in 1938. Out of the total consumption, the Government, including Army, Navy, Marine, and Coast Guard services, used approximately 45 per cent. Commercial airlines consumed 40 per cent, engine builders about 8 per cent, and small air fields, covering a majority of civil flying, about 7 per cent. Present facilities of the petroleum industry are considered capable of manufacturing approximately 270,000,000 gal. of 100-octane aviation motor fuel. Plants under construction and on building programs will increase the production of 100-octane aviation motor fuel by domestic refineries to 338,000,000 or 339,000,000 gal. annually by the end of 1940. If present construction plans are pursued, it is estimated that 1941 production of 100-octane gasoline will reach the total of 410,000,000 gal., or nearly four times the actual consumption of all grades of aviation gasoline during 1938.

A flight of pursuit airplanes in line. These fast planes are designed to overtake and fight any enemy bombers

Commercial airliner in flight over New York City. All branches of aviation consumed 113,000,000 gal. of gasoline in 1938

It should be borne in mind that any production of 100 or other octane fuel which is in excess of current aviation needs will be blended with the ordinary refinery gasoline production to raise the octane of the latter. The trend in octane ratings of automobile motor fuels is steadily upward.

There is little doubt the number of planes in all branches of service will continue to increase. The U. S. Government's goal of 6,000 planes for the Army and a similar total for the Navy will mean increases of nearly 6,000 ships to the national-defense facilities. Since most of the ships to be added by the two main branches of national defense will be of the first-line fighting classification, it is reasonable to assume practically all will operate on 100-octane fuel. It may be significant to note, however, that the airplane-building program of the two services is projected for fulfillment in the middle of 1941. There is always the possibility world conditions may change short of the projected plane construction program and reduce what now seem minimum requirements for safety.

With the addition of facilities for the production of 100-octane motor fuel in the past year or 18 months there has been a drop of 3½ to 4 cents per gallon in the value of this premium gasoline. Some men in the industry anticipate that additional reductions in the price for premium motor fuel will occur in proportion to expansion of producing facilities. Consequently, the problem arises whether construction, economically justified under present or recent past conditions will extend the same degree of profitable operation in a year, 2 years or 3 years hence. The consensus indicates refiners will be compelled to look for

operating economies which are not obvious at the moment.

Generalization on the cost figures for operating polymerization and both thermal and catalytic alkylation plants is impossible since the type of feed and other operating conditions vary widely.

Plans were announced early in October for construction of a commercial plant for production of neohexane, a high-value blending agent developed on pilot-plant scale by Phillips Petroleum Co. at its Borger, Tex., refinery. In its pure state neohexane has an octane number of 95 but its blending value is in the neighborhood of 115-octane number. The material is produced by the thermal alkylation treatment of ethylene and isobutane in the presence of approximately 900° F. temperature and pressure of more than 1,000 lb. per sq. in. Chemically, neohexane is 2,2-dimethyl butane, similar in structure to isooctane (2,2,4-dimethyl pentane) which is currently the base material in most 100-octane motor fuel. Various ratios of isooctane, isopentane and straightrun gasoline are currently used in compounding aviation gasoline of higher qualities with the addition of tetraethyl lead. Because of the volatility, which isooctane lacks, neohexane may be blended direct and its susceptibility to tetraethyl lead makes it ideal for production of a balanced peak quality aviation fuel. It has been estimated that sufficient raw material is available in this country to produce 1,000,000,000 gal. per year of neohexane. While the producing capacity of this country is largely a theoretical figure and does not attempt to encompass the economics involved it may be considered indicative of the potential sources for meeting any increase in demand for quality motor fuels.

Progress made by the research and development branch of the petroleum industry in the past 20 years is striking when the quality of motor fuel used in World War planes is compared to that available currently in quantity. Aviation gasoline available during World War years varied widely in specification characteristics, ranging from fuels which were little more than automobile gasolines of that day to quite volatile fuels, having end points no higher than modern aviation fuels. The more volatile fuels, selected almost exclusively by gravity specifications, were used in the fighting planes and the low-quality materials in training ships. Knock-rating value was not included, whereas this element alone is considered one of the most important ingredients in specifications for aviation gasolines. Although it was not generally recognized at that time the selection of higher gravity fuels gave the utmost in knock-rating characteristics then available. It is probable that the best quality aviation fuels during World War days did not exceed 65-octane number according to present standards and that a good portion would not exceed 50 octane.

Seventy-three-octane aviation gasoline (unleaded) became standard for plane operators and refiners alike about 1930, and the intermediate grade (80 octane) and the premium (87 octane) were produced by the addition of lead. When the synthetic production of isooctane became possible on commercial scale about 1935, the 100-octane motor fuel productible therefrom was beyond the economic reach of most consumers. Availability of this premium antiknock blending agent served, however, to make consumers more exacting in their specifications. The immediate result was a wide range of aviation gasolines each of which was virtually a separate product so far as the refiner was concerned.

As a result of cooperation in 1938 between leading air-line operators, engine builders and refining companies, functioning through the Cooperative Fuel Research Committee, agreement was reached on specifications for five grades of gasoline. The accompanying tabulation of specifications on the five grades of commercial aviation gasoline have been extracted from an article in the September 1939 National Aeronautics by Robb C. Oertel, aviation manager for Standard Oil Co. of New Jersey, and Robert E. Ellis, aviation manager for the Standard Oil Development Co.

REPRESENTATIVE AVIATION-GASOLINE SPECIFICATIONS

Grade	73	80	87	90	95
Octane No. (min.)—A.S.T.M.	73	80	87	90	95
Tetraethyl lead, ml. per gal.: Max.	none	2.0	3.0	4.0	4.0
Min.				3.5	3.5
Color	+21	Blue	Blue	Blue	Blue
Reid vapor pressure, p.s.i. at 100° F.	7.0	7.0	7.0	7.0	7.0
Sulfur, max., per cent	0.10	0.10	0.10	0.10	0.10
Freezing point, max., °F.	—76	—76	—76	—76	—76
Water tolerance—volume not to exceed ml.	±2	±2	±2	±2	±2
Acid heat, max., °F.	15	15	15	15	15
Caloric value, high or gross, min. B.t.u. per lb. (optional)	19,740	19,740	19,740	19,740	19,740
Gum, accelerated, max. mg. per 100 ml.	6	6	6	6	6
Corrosion:					
Copper strip	No gray or black discoloration				
Copper dish	No gray or black discoloration				
Distillation temperature, max., °F.:	Residue on evaporation of 100 ml. not to exceed 5 mg.				
10 per cent evaporated	158	158	158	158	158
50 per cent evaporated	212	212	212	212	212
90 per cent evaporated	257	257	257	257	257
Sum of 10 and 50 per cent evaporated temperatures,, min., °F.	307	307	307	307	307
Distillation recovery, min., per cent	97	97	97	97	97
Distillation residue, max., per cent	1.5	1.5	1.5	1.5	1.5
Distillation loss, max., per cent	1.5	1.5	1.5	1.5	1.5
Acidity of distillation residue	Neutral	Neutral	Neutral	Neutral	Neutral

"Looking ahead as regards the specifications," wrote Mr. Oertel and Mr. Ellis, "it should be borne in mind that this concerted effort is but a start along a sound road. It is quite possible that further simplification may be made by the reduction of grades, or the elimination, or at least modification of certain items of the specifications. For example, it appears that Grade 73 could be completely dropped from a retail distribution viewpoint and Grade 80 be the lowest octane fuel normally distributed. The saving to those responsible for such deliveries would offset the value of the tetraethyl lead required to lift this base product to 80-octane numbers.

"Our military services have special problems which require specifications distinct from the commercial ones listed. For that reason it was not practical to incorporate government specifications into this general grouping. A step forward, however, was achieved when the Army and Navy representatives agreed upon a new series of specifications for the different grades they require. By this joint action the petroleum industry has been saved from the several additional specifications formerly existing when the Army and Navy each had its own set of specifications. At the present time certain of the commercial grades and Army and Navy grades may be met from the same supplies. The specifications for one of the principal grades purchased by the Army and Navy may be met by 90-octane commercial grade, providing the lead content does not exceed 3.5 cc. per gallon.

"Commercial airlines of this country now use Grades 80, 87 and 90. The trend is toward a reduction of the quantity of 80-octane grade used and an increase in the 90-octane grade. The 95-octane commercial grade, containing between 3.5 and 4 cc. tetraethyl lead and rated by the A.S.T.M. method, and the 100-octane Army-Navy grade, containing 3.0 cc. maximum lead and rated 100-octane by the Army method of test, may be considered as comparable grades, since they give approximately equal full-scale engine performance. The 95-octane grade is being used on oceanic flights, where long nonstop hops are obligatory."

Land airline operators in this country have avoided use of fuels higher than 90-octane number because the lower specific fuel consumption was not essential to their operations and the higher cost of the better quality fuel could not be economically justified.

If greater producing ability of this country results from the recently completed plants, those under construction and planned by the refining industry, it is considered probable that commercial airlines will make plans for more extensive use of 95-octane fuel as early as 1941. With the addition of thermal and catalytic alkylation facilities now under way it appears probable that the industry will be in position to supply an increasing volume of the upper bracket fuels at prices lower than those currently existing.

Under present conditions Army 100-octane gasoline containing not more than 3.5 cc. of tetraethyl lead is valued at the refineries at about 16.5 cents per gallon while the 95-octane material for commercial purposes containing generally about 3.75 cc. of lead is in the neighborhood of 12 cents.

May Test Venezuelan Pact

WASHINGTON, D. C., Nov. 27.—A suit to prevent reduction of the excise tax on imported fuel, petroleum, and fuel oil as provided by the reciprocal trade agreement with Venezuela, which becomes effective December 16, is being considered by Russell B. Brown, general counsel of the Independent Petroleum Association of America.

The contemplated legal action would challenge the right of the president to reduce an excise tax on imports as distinct from a regular customs duty. Legal arguments exist for such a position, but to date the trade agreements program has been practically invulnerable against court attacks because of the difficulty of bringing suit. Several cases were brought in the early days of the program in an attempt to challenge the delegation of authority to the president to reduce customs duties, but the litigants were denied a hearing because they were unable to show that they themselves were actually injured by the duty reductions. If the oil-tax reduction is challenged the suit will have to be brought by a company or individual who can make a showing that its own business is directly and specifically injured by the tax reduction.

An outline of the argument which might be used in such a suit is contained in a letter to Secretary Hull from Rep. Wesley E. Disney, of Oklahoma, in which the congressman pointed out that during congressional debate on the trade agreements act it was the opinion of Congress that excise taxes were in a different category from customs duties and that taxes could not be altered by trade agreements.

All oil out of Golden Meadow field, La Fourch Parish, Louisiana, is moved to market by barge

Better Control in Louisiana

By NEIL WILLIAMS

NEW ORLEANS, Nov. 27.—Spreading development and increasing number of wells completed in coastal Louisiana fields, constantly augmented by the continued widespread drilling activity, are beginning to complicate control of production in Louisiana. Despite drastic reductions made in allowables of many existing fields and wells and adoption of more effective proration methods, state production is about back to the peak reached last July and steadily increasing. Now, being more limited in the extent to which further reductions in allowables can be ordered, the state may be faced with the necessity of permitting production to exceed market-demand estimates of the Bureau of Mines unless such estimates can be increased.

The Department of Conservation consistently has attempted to keep the state's production within the Bureau of Mines market-demand estimates. Fortunately, until now, existing allowables have been sufficiently high so new production could be absorbed. At the same time, by drastic reductions in allowables of a number of fields last August production was reduced so much below the Bureau of Mines estimates that, with further reductions in other fields since, there has been adequate margin to take care of new production.

Down to Minimum

However, as a result of these reductions, it now is believed by conservation officials that production of most existing fields and wells has been curtailed about to a minimum consistent with good practice and policy, and additional new production will have to be taken care of by other means than by butting into the allowable of present fields and wells. This is in face of the fact that allowable production allocated to wells in some fields still is considerably more liberal than is custimary in some other states. Most of the fields are in coastal Louisiana, where the difficult and costly conditions under which some of the fields are developed require higher allowables so long as efficient and conservative production practices are followed.

These allowables, on the other hand, now are greatly in contrast to the excessively high well allowables granted in some coastal Louisiana fields prior to last August when the more conservative policies were adopted by the Department of Conservation with the change in its administration made during the shakeup launched by Gov. Earl K. Long. Then it was not uncommon for wells to be permitted to produce as much as 500 bbl. and in some instances as much as 1,000 bbl. daily. Such high allowables have been entirely discontinued, which is in line with public declarations of both Governor Long and Ernest S. Clements, newly appointed conservation commissioner, that Louisiana from then on could be counted on to cooperate in every way possible with other states in efforts to prevent excessive production that might tend to disturb market conditions.

Current practice of the Conservation Department for allocation of allowables each month, taking into consideration new production brought in, has been to use the preceding month's allocations as a base, adding the new production brought in during the month by fields, and totaling this for the state, to determine the production in excess of the Bureau of Mines estimates. Production of all fields in the state then has been reduced each month the percentage necessary to bring the total allowable within the Bureau of Mines figures.

Still desirous of continuing the state's production within the bureau's estimates, but hesitant about making further reductions in existing allowables to take care of new production, conservation officials are considering proposals to the Bureau of Mines for increases in its allocations to Louisiana. It is contended that in view of its steadily increasing reserves and production, the state is entitled to a much larger proportionate share of the country's market demand. It also is claimed there now is a demand for Louisiana crude greatly in excess of the present allowable.

November Figures

Basic allowable of Louisiana for November has been 258,994 bbl. New wells brought in since November 1 have boosted production above 268,000 bbl. This is 4,000 bbl. above the allowable for last July when a peak was reached in production. With the daily allowable for that month at 264,163 bbl., production went as high as 275,000 bbl. due to new production brought in and special authorizations for additional oil that might have been granted. Effective August 1, however, following accession of Governor Long, and his expressed desire to prevent overproduction, allowable production was cut 22,561 bbl. to 241,602 bbl., which was 17,378 bbl. under the Bureau of Mines estimates for Louisiana. A further small reduction was made for September, but since then the accumulating new production has been forcing increased total allowables to a level approximately equal to the Bureau of Mines estimates. To prevent allowable production for this month from exceeding the Bureau of Mines figures, allowable production of all fields and wells was reduced 8 per cent.

It has been possible for the Conservation Department to make a small reduction in the total daily allowable for December, which has been set in the proration order just issued at 255,200 bbl. By this cut, amounting to 3,794 bbl. from November schedule, production again is being held to the Bureau of Mines estimate of daily market demand for the state, despite the fact that the estimate for December, which is exactly the new allowable, is 3,800 bbl. less than for the past month. However, any additional wells completed and new production brought in during the month will force the allowable production to exceed the Bureau of Mines forecast of market demand.

December Allowable

The December reduction in total daily allowable is being effected largely at the expense of North Louisiana fields, whose total allowable has been ordered cut 6,135 bbl. to 61,024 bbl. Daily allowable for coastal Louisiana is being increased 2,341 bbl. over the November schedule. Allowable reductions have been ordered in 46 coastal Louisiana fields; but, except at Jennings, where daily allowable is to be cut 1,508 bbl., and Lafitte, with a 1,466 bbl. cut, the revisions are small and are being more than offset by increases in other fields, chief of which are Charenton, Cheneyville, Golden Meadow, University and Villa Platte, where important new development is taking place. To add to the coastal Louisiana production at the start will be Shell Oil Co., Inc.'s new field at Happytown, St. Martin Parish, just opened and not included in the December proration order, and possibly two other fields now being opened, one by Pan American Production Corp. at La Pice, St. John the Baptist Parish, and the other by Tide Water Associated Oil Co. at Bay Brussell, La Fourche Parish.

The drastic reduction made in August was effected largely by cuts in the allowables of a relatively few fields, mostly in coastal Louisiana. As the allowables of these particular fields since have not been increased, it is significant that, with production about back to the peak, new production brought in since August has totaled at least the amount of the August cut. No increases in allowable have been made in any field except to take care of new developing production. At the same time, the new production is somewhat greater than that

figure as additional reductions have had to be made in well allowables generally each month to keep the production total down.

Indicative of the development is the increase in producing wells. In coastal Louisiana, where the major development is taking place, there now are more than 1,620 producing wells, an increase of approximately 200 since July. Considering that in most fields, development is on a restricted basis, this increase is sizable for coastal Louisiana. Since the first of the year there has been an increase of more than 400 in producing wells.

Although operations in many districts have been at low ebb for several months, drilling in coastal Louisiana has continued active. There now are more than 160 drilling rigs running in the district. The number of active operations has been steadily increasing all year, the most active in the district's history. Except for 18 rigs at Golden Meadow, 10 each at University and Eola,,9 at Villa Platte, and 7 at New Iberia, there are no large concentrations of activity to run up the total number of rigs. This reflects the widespread nature of the play.

It so happens there is no important leasing activity in the district at this time, in contrast to the active leasing play going on for several years. This inactivity, however, is attributed to the fact that most of the companies now are far ahead of themselves in leasing, and with numerous blocks already leased remaining to be drilled they are trying to catch up before taking on anything more. The Mississippi play also has turned their attention away so far as leasing is concerned.

Out of the drilling activity, at least 12 new fields have been opened in coastal Louisiana this year, one of the most successful wildcatting years in the district's history. These do not include a number of fields, proved previously by gas wells, but in which first oil production was not opened this year. Among discoveries this year are a number regarded as of more than ordinary importance.

Three New Fields Opened

Three new fields have been opened within the last 2 months, one of these in the past week, while two additional fields, previously mentioned, are in process of being opened.

Keeping pace with this development, the Conservation Department, under the present administration, steadily is providing more efficient and effective regulation over drilling and production. Control of production is being placed on a more scientific and engineering basis with administration being extended to take in not only allocation of allowables to the respective fields but to the different leases and the individual wells.

Attention particularly is being directed to the producing conditions of the individual wells whose allowables are now being restricted to production consistent with efficient engineering practice. Under the program being developed, stricter regulation of drilling permits is being observed that more orderly drilling and spacing programs might be affected. Although not attempting to interfere in existing fields, except in prevention of waste or excessive production, the Department of Conservation is undertaking to conduct public hearings for all new fields to determine the most adaptable practices. Such hearings have been held for Golden Meadow and Eola and have been called for two more recently opened fields: Barataria, Jefferson Parish, and La Fourche Crossing, La Fourche Parish.

In the carrying out of its new program, the Conservation Department has received close cooperation of the majority of operators, despite the fact that the program has called for stricter control of production and operations. Two court attacks have been made recently on local proration allocations, but conservation officials have been attempting to work these out equitably. In one attack, George Lilly, of Houston, contested a reduction of allowable ordered on a well unit in the Eola field, and in the other, Glassell & Glassell, Inc., are seeking an increased allocation at Jennings, contending they are not receiving their proportionate share of the allowable granted the Jennings field. In the former case, already heard in court, it was claimed that in a reduction of allowable of the well involved from 60 to 30 bbl. daily, the Conservation Department had acted arbitrarily, resulting in discrimination, in view of the fact that neighboring wells, some on smaller tracts, had been granted higher allowables. The lower allowable was ordered, the Conservation Department claimed, because of alleged excessive gas-oil ratio. The case was settled by the court ordering restoration of the 60-bbl. allowable pending a field hearing at which the relative status of the well with other wells in the field could be determined.

In the Jennings case, the plaintiffs are not attacking the field allowable, but claim that in the allocation to operators and wells, they are permitted to produce only 25.86 per cent of the allowable granted the area in which their wells are located while they own 40.23 per cent of the productive area. With a view to adjusting any possible inequities, the Conservation Department, in line with its new practices for South Louisiana, conducted a public hearing at Lake Charles the past week, and from the evidence presented, a new order will be issued for the field if considered justified.

With Louisiana now in the midst of a spirited political campaign preceding the state elections in January, there has been some speculation as to what effect the outcome of the election will have on Louisiana's proration program, especially in view of the scandals unearthed. Governor Long is one of five candidates for governor. So far, the oil industry outwardly has taken no part in the campaign and as yet the Department of Conservation or its regulation of oil operations has not been involved in any way in the campaign.

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Frank Phillips' Birthday Sets Off Big Festival

BARTLESVILLE, Okla., Nov. 28. — Whether Frank Phillips, head of the Phillips Petroleum Co., enjoyed being 66 years old or not, he couldn't help enjoying the party. Bartlesville, with its 18,000 population, quit work for the day and, joining some 10,000 out-of-town visitors, devoted itself enthusiastically to seeing that Uncle Frank had a good time and that it had a good time itself.

The number 66 dominated the celebration, which began early this morning and was still going strong at midnight. That number was indicative not only of the milestone reached by Mr. Phillips, but of the tradename used by the company.

During the day Mr. Phillips announced he had contributed $66,000 toward the creation of "a fund to be used for advanced education among children of Phillips Petroleum Co. employes."

At 7 a.m. the Frank Phillips 66 Special arrived from Phillips, Tex., a town named in honor of the oil man, bringing the high-school band, composed of children of Phillips employes. This band had a conspicuous place in the afternoon parade, which was the principal feature of the program. The forenoon was devoted to inspection tours that included the Frank Phillips ranch and Woolaroc museum, the Phillips company office building, the company's research laboratory building, its airport, and other points of interest.

Among the thousands of visitors were leaders of the oil industry from all parts of the country.

At 12:49 a salute of 66 aerial bombs signalized the beginning of an air exhibition. Col. Arthur C. Goebel, who under the sponsorship of Frank Phillips in 1927 won the Dole competition flight to Hawaii, wrote a birthday greeting in huge letters at an altitude of 2 miles. Billy Parker flew the pusher biplane which he made in 1912. Then there was an air tribute from Frank Phillips' friends who had flown to Bartlesville for the occasion, company planes, and a mass flight of 12 ships from Spartan School of Aeronautics in Tulsa.

Before proceeding to the reviewing stand Mr. Phillips, accompanied by Mrs. Phillips and by Gov. Leon C. Phillips, of Oklahoma, drove over the parade route to acknowledge the greetings of the thousands who packed the sidewalks or looked down from windows. The car in which they rode was the one built for the king and queen of England to use when they toured Canada last spring.

The parade consisted of 66 units, the first of which was an immense birthday cake, gift of Phillips employes and fashioned to represent the Phillips Building.

A historical pageant, symbolic of the times through which Mr. Phillips has lived, came next. It presented pioneer conditions in Greeley County, Nebraska, where Mr. Phillips was born in 1873; the high-wheeled bicycles, derby hats and bloomer girls of 1884; Mr. Phillips at 44, when he organized the Phillips Petroleum Co.; at 55, when the company's building was erected, this scene including a 1928 automobile with passengers representing Wiley Post, Will Rogers and Art Goebel; at 66, "Uncle Frank plans for the future," showing a Boy Scout, a minister, a retired employe, and a guide at Woolaroc riding in the "car of the future."

The second section was made up of employes from the 21 departments of the company, marching in the order in which the departments were established. An honor group consisted of employes who have had 20 years or more of service with the company, earning the diamond service badge.

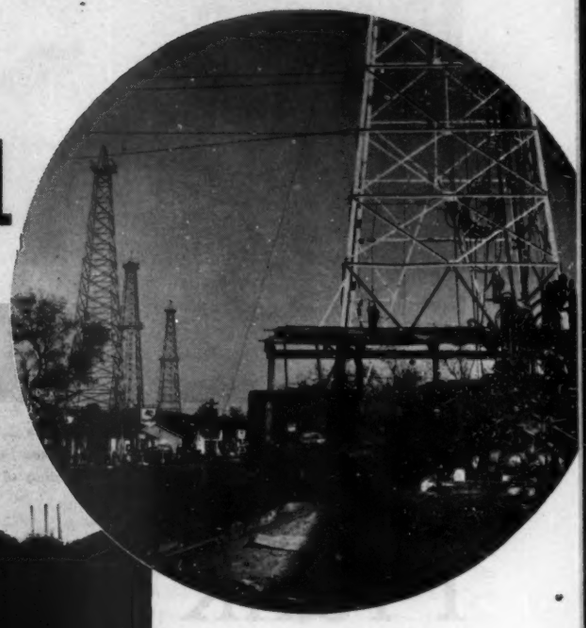
A living reproduction of the famous Pioneer Woman statue bore the inscription: "The success of a great man is attributed to the help of a good woman—the pioneer woman, symbolic of the part played by Mr. Phillips' helpmate, Jane Gibson Phillips."

Following the parade the big birthday cake was presented to Mr. Phillips at the Municipal Stadium. The Star-Spangled Banner was played by the 16 massed bands. The principal address was given by Governor Phillips. The presentation speech was given by Nona Farquharson, representing the Phillips organization. Mr. Phillips responded, expressing his appreciation.

Variety shows, a basketball game, fireworks, and dancing rounded out the day. The celebration was the result of a voluntary movement among Phillips employes, who defrayed the attendant expenses by contributing 10 cents for each year of service.

Big Townsite Well Revives Cement Field

By DAL DALRYMPLE



Circle—New tests starting on Cement townsite, in the 23-year-old Cement field, Caddo County, Oklahoma, following completion of a 5,475-bbl. townsite producer

Left—Cement field scene, with deepening operations under way at an old well on a hillside

THE one-horse shay of lyrical fame apparently is being outdone by the Cement oil field, right now one of the busier areas of Oklahoma. The noted old vehicle finally yielded to Father Time, but it is beginning to look as if the Cement field will go on forever.

Certainly, in this twenty-third year of its existence, the field gives no indication of playing out. On the contrary, its prospects are better than ever, what with a townsite drilling campaign underway near the eastern end and with outposts being drilled and giving promise of extensions in the far northwest sector.

This unusual field, located in southwestern Caddo County and in the southwestern corner of the Anadarko basin, has had its ups and downs and has been developed by spurts. The present townsite-drilling program, recently given impetus by completion of a 5,475-bbl. well, is a highlight of the checkered history of the area.

First indication that here was a productive area worth developing came in 1916 when gas was found at 1,415 ft. at a well in Section 6-5-8w, about 3 miles east of the town of Cement and across the line in Grady County. The following year the first oil was found in Section 32-5-9w, in Caddo County, southeast of Cement. There was a spurt of drilling, but it was not until 1922 that the field had attained sufficient importance for production figures to be taken out of the miscellaneous class and set up separately. Activity continued and production soared until a peak of 1,307,198 bbl. was attained in 1930. Routine development followed for several years, with an occasional extension or new pay discovery. Then, early in 1938, the old field was given new life with a 3,500-bbl. producer extending the producing area ½ mile northwestward and opening a big area. About the same time a 203,500,000 cu. ft. gas well was completed—and the lid was off the new Cement development.

It was not until this year, however, that intensive drilling was permitted on Cement townsite. Several months ago the town government authorized one well to be drilled to a city block.

The first townsite well was completed late in August, Johnson & Rollins' No. 1 McKenna, Block 16, good for 2,246 bbl. daily from Rowe sand at 3,348-73 ft., total depth. Townsite wells completed to date include the following:

TOWNSITE WELLS

Operator and well—	Sand (ft.)	Prod. (bbl.)
Johnson & Rollins' No. 1 McKenna	3,348-73	2,246
Johnson & Rollins' No. 2 McKenna	3,265-3,433	2,052
Johnson & Rollins' No. 1 Culp	3,247-3,452	5,475
Aladdin Pet. Corp.'s No. 1 Trotter	T.D. 3,422	3,307
Yorkan Prod. Co.'s No. 1 Lucas ..	3,435-50	1,451

This activity has extended beyond the townsite, and some large wells recently have been completed in Section 3-5-9w, just outside the town limits. These include Ohio Oil Co.'s No. 10 Pau-Kune, offsetting the townsite, good for 3,362 bbl. daily from sand at 3,346-85 ft., and the company's No. 9 Pau-Kune, good for 1,357 bbl. daily at total depth of 3,480 ft.

Current operations in Section 3, including the townsite, are: Aladdin Petroleum Corp.'s No. 1 Wade, Block 1, total depth 3,535 ft., running Schlumberger; Carey's No. 1 Moore, total depth 3,416 ft., made swabbing potential of 507 bbl., may retest; Johnson & Rollins' No. 1 Ackerman, drilling below 2,488 ft.; same operators' No. 1 Rasberry, Rowe sand 3,428-51 ft., shut down; Ohio Oil Co.'s No. 11 Pau-Kune, NW SE SW Section 3-5-9w, location; same company's No. 12 Pau-Kune, drilling below 1,540 ft.; Riddle's No. 1 Mayes, total depth 3,505 ft., shut down; Johnson & Rollins' No. 1 White, cellar.

Production Extended

While the townsite play is hitting its stride, operators continue their quest for new productive spots on the other side of the field. Several ex-

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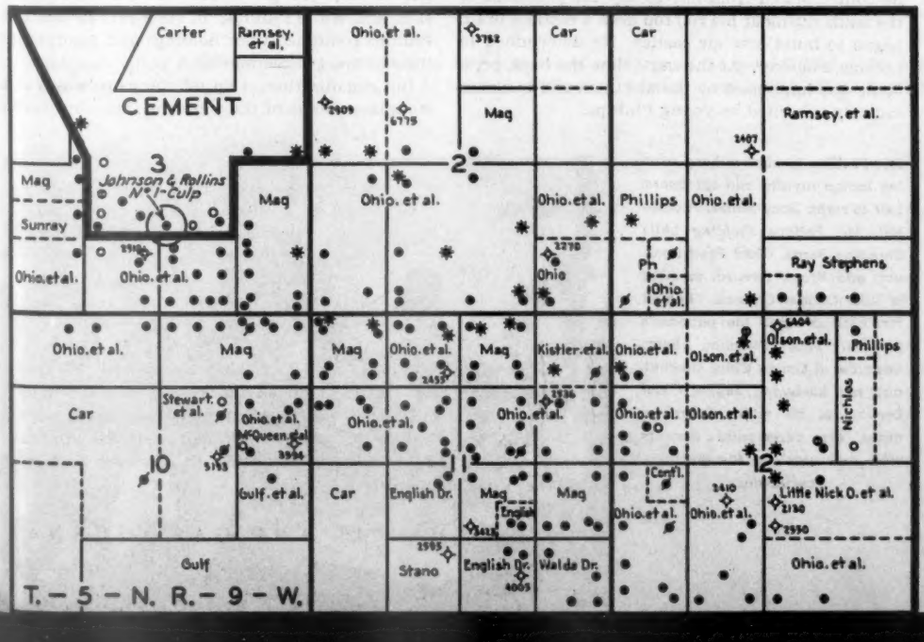


Map—A 5,475-bbl. well was recently completed at Johnson & Rollins' No. 1 Culp, Section 3-5-9w, to give impetus to Cement-townsite drilling program. Map shows how dry holes are drilled in the midst of producers in the Cement district

(Midcontinent Map Co., Tulsa)

In the front row of the family group, left to right, are L. E. and Ed Phillips. Middle, Lewis F. Phillips, father; Waite and Wiate, twins; and Mrs. Lucinda Phillips, mother. Back, Frank and Jennie (Mrs. Roy Cohan). Next comes Frank Phillips at 44, when he organized the Phillips Petroleum Co. Then Mr. Phillips waiting for a bite. Last is a painting of Mr. Phillips by Raymond P. R. Neilson, of the National Academy

Frank Phillips Dreamed an Oil

By T. F. SMILEY

FUNNY how things work out. Frank Phillips, according to some folks, would have become a well-to-do farmer in Nebraska—leader in his community of course, always devising better ways of doing things, and all that—if it hadn't been for the grasshoppers.

As it is, he heads the oil empire that is the Phillips Petroleum Co.; an empire, with assets of around $300,000,000, which in Oklahoma alone affords a livelihood for 18,000 persons and has an annual pay roll of $7,000,000.

The grasshopper theory is scoffed at by those who know Frank Phillips well. They declare that if he had been born in Timbuktu his driving energy and farsightedness would have brought him where he is today just the same.

But about the grasshoppers.

Mr. Phillips was born in 1873 on a farm near the hamlet of Scotia, Neb., the first white child born in Greeley County. His father, Lewis Phillips, had settled there the year before, built a log house, and helped to construct the schoolhouse which later served as his office when he had been chosen county assessor and as his courtroom as Greeley County's first county judge.

Then came the grasshopper scourge. Church folks turned to Exodus and read again, with new understanding, the story of the locust plague: "They covered the face of the whole earth, so that the land was darkened; and they did eat every herb of the land, and all the fruit of the trees which the hail had left: and there remained not any green thing in the trees, or in the herbs of the field, through all the land of Egypt."

It was like that. The clouds of grasshoppers left a picture of ruin at Scotia. Lewis Phillips packed his household goods in a covered wagon and rode away with his family, a casualty of pioneer life in the West. Undefeated though, and with his sense of humor undimmed, for he told afterward: "The grasshoppers ate all my crops. When they started eating the harness and the spokes of the wagon wheels I decided to move before they ate the baby. As I took my last look at the devastated farm the grasshoppers were eating the fence posts."

So to a small farm near Creston, Iowa, where young Frank attended the country school and earned his first money digging potatoes for a neighboring farmer at 10 cents a day. The farmer, still living, says he overpaid Frank and that he lost money on the potatoes.

But even an income of 10 cents a day couldn't provide everything. For instance, a pair of the spring-bottomed striped pants that were having an ephemeral but resplendent vogue. And here again the inscrutable ways of destiny were revealed. Frank was at that stage where sartorial elegance holds a high place.

A barber in Creston sported a pair of these trousers that stirred Frank's envy. A daring thought rooted in the boy's mind. Why couldn't he get a job in town and earn enough money to buy a pair of the coveted pants?

The first man he sought was the barber himself, who gave Frank a job. The latter quickly mastered the intricacies of razor, shears, and the varicolored bottles. But a mind that eventually was to guide the affairs of a great corporation could not be confined to such things. Always it was reaching out, dreaming, planning.

It wasn't long before young Phillips gave Creston a practical demonstration of his genius for organization and financing. There were several barber shops in the town—and he had acquired all of them. In that early day, in a remote rural community of the Middle West, he had thought out the advantages and economies of the chain-store system. At each shop patrons were able to buy "Mountain Sage," the hair tonic he manufactured.

The shop in which Frank himself continued to work was in the basement of the town's bank. As he contemplated from day to day the president of the bank sitting at his roll-top desk a restless brain began to build new air castles. He determined to become a banker. At the same time the bank president was impressed by the alertness and business sagacity exhibited by young Phillips.

The upshot of this mutual interest was that in 1897 Frank Phillips sold his barber shops and went to work for the banker as a bond salesman in New England. And that wasn't all. No, indeed. His interest had not been restricted to the banker. It extended to the banker's daughter, Jane Gibson. He married her. Frank Phillips was on his way.

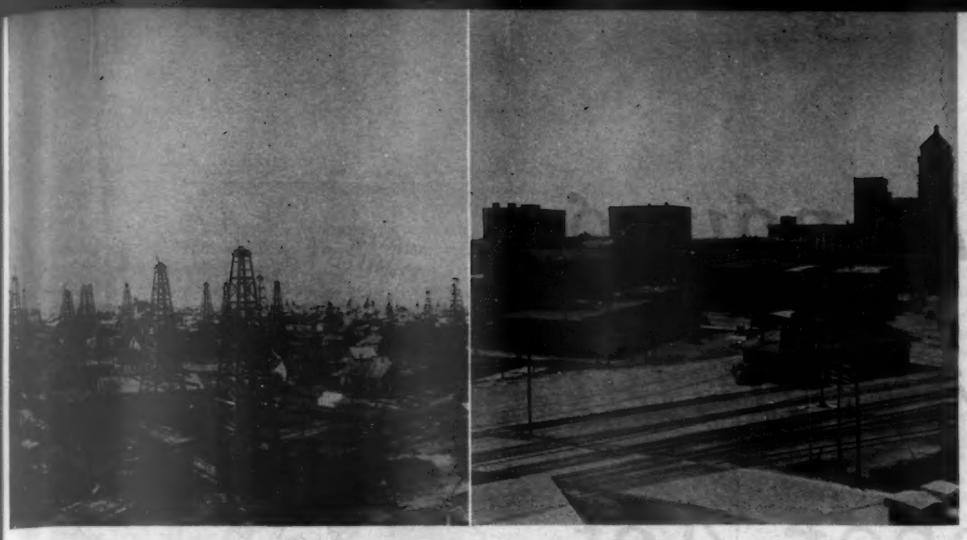
The oil boom in Indian Territory in 1903 spelled opportunity to the imaginative mind of the young bond salesman. Bartlesville, then a sprawling village of rudely built houses and site of the first oil well in the new field, was a center of feverish activity. That sort of community needed a bank. Mr. Phillips, just under 29, decided to provide it, so, acting promptly, he resigned his position with the Creston bank and with the profits from his bond sales went to Bartlesville, where he organized the Citizens Bank & Trust Co.

Another dream had come true. Frank Phillips was a banker in his own right. But it was unthinkable that a man of his type could stand just outside the eddying currents of oil excitement, as he was doing, without wanting to step into them. Again he saw opportunity—not a gambler's opportunity, but the opportunity of a man with a sense of investment values.

Mr. Phillips soon had a few oil leases and a drilling well. After adversities that only stiffened his determination he eventually found himself a small oil producer in addition to being a banker. His oil interests grew. He sent for his brothers, L. E. and Waite Phillips. In June 1917 he and L. E. Phillips combined their holdings and incorporated the Phillips Petroleum Co.

But organization of an oil company was a commonplace. Some of the concerns that were spring-

Mr. Phillips is shown here visiting Indian royalty and old-timers. Left to right: Zack Miller, Pawnee Bill, Mr. Phillips (holding Little Standing Bear), Chief Fred Lookout, and Frank Revard, member of the Osage Council. Behind Mr. Phillips stand the papoose's parents, Mrs. Standing Bear, daughter of Osage Chief Lookout, and her husband. Behind Chief Lookout is his wife. Other Indians are ceremonial dancers who took part in the birthday celebration



When Frank Phillips looked out from the car window as his train drew into the Bartlesville of 1903, and he got his first sight of the town, then in the heyday of its oil boom, wooden derricks formed the skyline. Modern business buildings now greet the visitor

Empire—and Built It

ing up had experience, managerial ability, and producing properties. Others just had hopes. In the swirl of events the Phillips venture was merely another company to many who casually observed its entrance upon the petroleum scene. There was nothing for the time being to suggest that this modest organization, with a capital of $3,000,000 and 27 employes, was to be known one day as the largest employer of labor and payer of taxes in Oklahoma.

In its early years the company was devoted to production only. A few gasoline plants were built, however, and a research department was established to explore the possibilities of using the crude to make finished motor fuel. In 1927 Mr. Phillips, foreseeing a time when his company, with its steadily increasing production, might not safely depend on others for a market, extended its operations to include refining and marketing, thus providing a steadier outlet for Phillips products.

Growth now became more rapid. The Philgas department was organized in 1928; the Independent Oil & Gas Co., of whose board Waite Phillips was chairman, was purchased in 1930; a gasoline pipe line from Borger, Tex., to East St. Louis, Ill., was built in 1931, and all divisions of the company were expanded and placed on a more efficient basis.

In 1937 Mr. Phillips, who for 21 years had been the company's chief executive officer, president, and chairman of the board, desired to lighten his load of responsibility, and upon his recommendation K. S. Adams, executive vice president, was advanced to president. Mr. Phillips remains the senior officer as chairman of the board.

Company operations now spread through 33 states and include all phases of the oil business, from producing crude at the well to running motor fuel into the consumer's car. Sales of refined products aggregate more than a billion gallons yearly. The company is a major producer of oil and gas, the world's largest manufacturer of natural gasoline, and the world's largest distributor of liquefied gas. The organization that once was composed of 27 persons has grown to more than 30,000 employes, jobbers, and dealers. The handful of original stockholders has swelled to 41,000. In the past 10 years the company has paid more than $4,500,000 gross production tax to Oklahoma.

From the beginning the company's major activities have been centered in Oklahoma, where it operates eight gasoline plants, a refinery, 600 miles of pipe line, and is producing from 1,700 oil and gas wells.

The Iowa farm boy has grown into an oil man, financier, and business man of international dimensions. In 1927 Mr. Phillips went to Paris upon the request of the French Government that he act as counselor and advisor to the petroleum committee of the Chamber of Deputies. It doubtless was the service performed then that impelled the French Government to make him a Chevalier of the Legion of Honor, symbolized by the tiny red ribbon he wears in the lapel of his coat. Many other honors have been conferred upon him. One of which he owns to being proud is that of having been made a chief of the Osage tribe of Indians, as a result of his close friendship with Chief Lookout. Mr. Phillips has earned the warm devotion of the Osages, to whom he repeatedly has demonstrated his good will.

There is something significant in the fact that among various titles conferred upon Mr. Phillips the one he likes best is that bestowed in affection by his employes, "Uncle Frank."

How Frank Phillips manages to get along with so little recreation is a matter of comment. Once in a great while he does a little deep-sea fishing off the Florida coast. On such trips it is noticeable that he is accompanied by business associates, and there is reason to believe there is more discussion of business than of fish. At infrequent intervals he tries his luck with bass in Oklahoma waters. And he does slip away from work now and then to ride horseback over his immense ranch, Woolaroc, one of the show places of the state, near Bartlesville. But even then he carries with him his inevitable notebook and pencil, and as he canters over the winding bridle paths he sometimes stops and jots down an idea that has occurred to him—a suggestion for the laboratory, an improvement in service, the name of a promising employe who should be watched with a view of giving him more important work. Always he is thinking ahead.

Thinking ahead. It is the faculty, Frank Phillips' friends say, that from boyhood days in Creston has never allowed him to drift into mediocrity. It is the thing that has prompted him to develop one of the largest and best-equipped research laboratories in the oil industry, where trained men constantly are trying out new ideas.

Some of the ideas that are accepted for experimentation in the laboratory—or anywhere in the whole Phillips system, for that matter—may seem fantastic, unworkable, when they first are propounded.

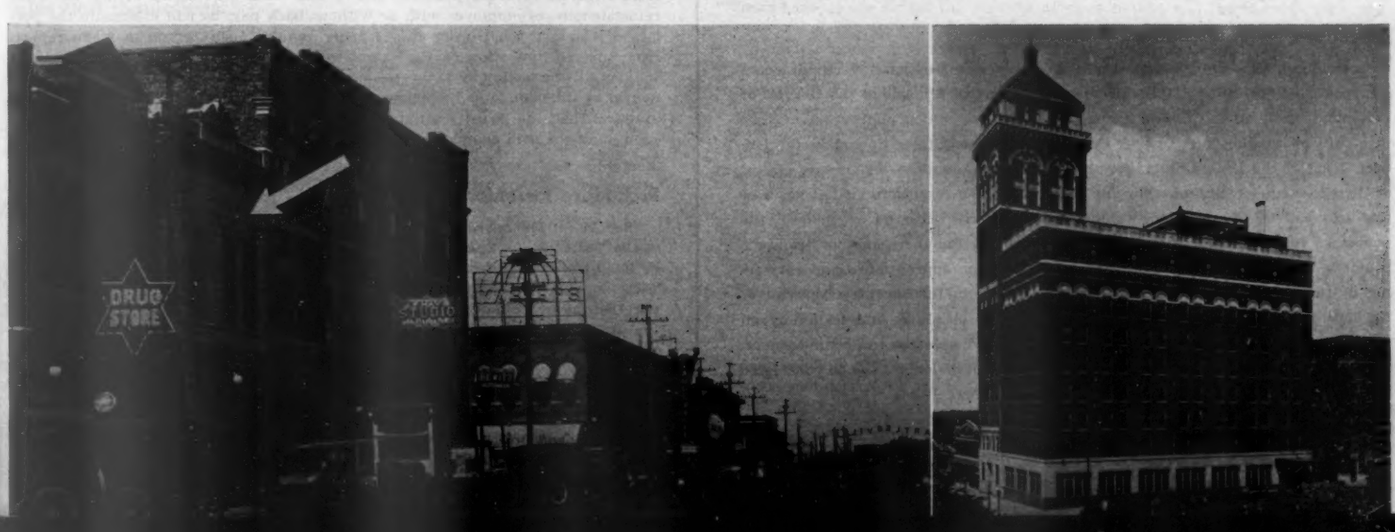
"Nothing sounds crazy to Frank Phillips if it comes from an intelligent mind," remarked one of his close associates. "He has a genius for creating practical results out of 'unworkable' suggestions; and the more obstacles he meets, the more fun he gets out of it. He's an incurable optimist."

Mr. Phillips has little patience with second-rate performance, by himself or anybody else. He doesn't play golf. Here's why:

He engaged a professional to teach him the game some years ago at the Broadmoor links, Colorado Springs, Colo. The pro took his pupil to a spot where they would not be annoyed by curious eyes and gave him the usual rudimentary instructions about how to stand, how to grip and swing the club, and "keeping his eye on the ball." Then he teed up the ball and directed the oil man to hit it. Mr. Phillips took several vicious but ineffective swings.

(Continued on Page 24)

When the Phillips Petroleum Co. began business in 1917 it had modest offices on the second floor of the building indicated on the left. Now it occupies the handsome building on the right, besides many branch offices in other cities



Cole Bill Language Strikingly Similar To the Labor Act

By W. R. WALLACE
Attorney, Magnolia Petroleum Co.

Remarkable parallelisms are discovered in comparing the language of the Cole federal oil-control bill with the National Labor Relations law—suggesting identical authorship. The troubles of industry with the labor act foreshadow the fate of the oil industry under the Cole bill, if enacted as it now stands.

Cartoon by Knott, courtesy Dallas News

Jumping a claim?

TEXT OF COLE BILL

Complaints and procedure.

Sec. 15 (*a*) Whenever the commissioner shall have reason to believe that any person has violated or is violating the provisions of Section 9 hereof, he shall have power to issue and cause to be served upon such person a written complaint stating the charges in that respect and containing a notice of a hearing before the commissioner at a place therein fixed, on a date not less than 5 days after the service of such complaint. Any such complaint may be amended by the commissioner at any time prior to the issuance of an order based thereon. The person complained of shall have the right to file an answer to the original or amended complaint, and to appear in person or by counsel and present evidence, under such regulations as the commissioner shall prescribe. In the discretion of the commissioner, any other person may be allowed to intervene in the proceeding and to appear in person or by counsel. In any such proceeding the rules of evidence prevailing in courts of law or equity shall not be controlling.

Cease and desist order.

Sec. 15 (*b*) If, after such hearing, the commissioner shall find that the person has violated or is violating the provisions of Section 9 of this act, the commissioner shall state in writing the findings as to the facts and shall issue and cause to be served on the person an order requiring such person to cease and desist from such violation and requiring the elimination of any waste resulting from such violation. The testimony taken at the hearing shall be reduced to writing and filed in the records of the Department of the Interior.

Procedure for enforcement.

Sec. 15 (*d*) The commissioner shall have power to petition any circuit court of appeals of the United States (including the Court of Appeals of the District of Columbia), or if all the Circuit Courts of Appeals to which application may be made are in vacation, any District Court of the United States (including the District Court of the United States for the District of Columbia), within any circuit or district, respectively, wherein any violation of the provisions of Section 9 of this act shall be found by the commissioner to have occurred or wherein the person so found to have violated such provision is found, resides, or transacts business, for the enforcement of such order and for appropriate temporary relief or restraining order, and shall certify and file in the court a transcript of the entire record in the proceeding, including the pleadings and testimony on which such order was entered and the findings and order of the commissioner. No objection that has not been urged before the commissioner shall be considered

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TEXT OF NATIONAL LABOR ACT

Complaints and procedure.

Sec. 10 (*b*) Whenever it is charged that any person has engaged in or is engaging in any such unfair labor practice, the board, or any agent or agency designated by the board for such purposes, shall have power to issue and cause to be served upon such person a complaint stating the charges in that respect, and containing a notice of hearing before the board or a member thereof, or before a designated agent or agency, at a place therein fixed, not less than 5 days after the serving of the said complaint. Any such complaint may be amended by the member, agent, or agency conducting the hearing or the board in its discretion at any time prior to the issuance of an order based thereon. The person so complained of shall have the right to file an answer to the original or amended complaint and to appear in person or otherwise and give testimony at the place and time fixed in the complaint. In the discretion of the member, agent or agency conducting the hearing or the board, any other person may be allowed to intervene in the said proceeding and to present testimony. In any such proceeding the rules of evidence prevailing in courts of law or equity shall not be controlling.

Cease and desist order.

Sec. 10 (*c*) The testimony taken by such member, agent or agency or the board shall be reduced to writing and filed with the board. Thereafter, in its discretion, the board upon notice may take further testimony or hear argument. If upon all the testimony taken the board shall be of the opinion that any person named in the complaint has engaged in or is engaging in any such unfair labor practice, then the board shall state its findings of fact and shall issue and cause to be served on such person an order requiring such person to cease and desist from such unfair labor practice, and to take such affirmative action, including reinstatement of employes with or without back pay, as will effectuate the policies of this act. Such order may further require such person to make reports from time to time showing the extent to which it has complied with the order. If upon all the testimony taken the board shall be of the opinion that no person named in the complaint has engaged in or is engaging in any such unfair labor practice, then the board shall state its findings of fact and shall issue an order dismissing the said complaint.

Procedure for enforcement.

Sec. 10 (*e*) The board shall have power to petition any Circuit Court of Appeals of the United States (including the Court of Appeals of the District of Columbia), or if all the Circuit Courts of Appeals to which application may be made are in vacation, any District Court of the United States (including the Supreme Court of the District of Columbia), within any circuit or district, respectively, wherein the unfair labor practice in question occurred or wherein such person resides or transacts business, for the enforcement of such order and for appropriate temporary relief or restraining order, and shall certify and file in the court a tran-

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TEXT OF COLE BILL

by the court, unless the failure or neglect to urge such objection shall be excused because of extraordinary circumstances. The findings of the commissioner as to the facts, if supported by substantial evidence, shall be conclusive. If either party shall apply to the court for leave to adduce additional evidence, and shall show to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for failure to adduce such evidence in the hearing before the commissioner, the court may order such additional evidence to be taken before the commissioner and to be adduced at the hearing in such manner and upon such terms and conditions as to the court may seem proper. The commissioner may modify his findings as to the facts, by reason of the additional evidence so taken, and he shall file such modified or new findings, which if supported by substantial evidence, shall be conclusive, and his recommendation, if any, for the modification or setting aside of the original order. The jurisdiction of the court shall be exclusive and its judgment and decree enforcing, modifying, or setting aside in whole or in part, any such order of the commissioner shall be final, subject to review by the appropriate Circuit Court of Appeals if application was made to the District Court and by the Supreme Court of the United States upon certiorari or certification as provided in Sections 239 and 240 of the Judicial Code, as amended (U.S.C., title 28, Secs. 346 and 347).

Provisions for appeals.

Sec. 15 (*e*) Any person aggrieved by an order issued by the commissioners in a proceeding to which such person is a party may obtain a review of such order in any Circuit Court of Appeals of the United States in the circuit wherein violation of the provisions of Section 9 of this act found by the commissioner occurred or wherein such person resides or transacts business, or in the Court of Appeals of the District of Columbia, by filing in such court a written petition praying that the order of the commissioner be modified or set aside. A copy of such petition shall be forthwith served upon the commissioner, and thereupon the aggrieved party shall file in the court a transcript of the entire record in the proceeding, certified by the commissioner, including the pleading and testimony on which the order was entered and the finding and order of the commissioner. Upon such filing, the court shall proceed in the same manner as in the case of an application by the commissioner under subsection (*d*) of this section, and shall have the same exclusive jurisdiction to grant to the commissioner such temporary relief or restraining order as it deems just and proper, and in like manner to make and enter its judgment and decree enforcing, modifying, or setting aside in whole or in part the order of the commissioner; and the findings of the commissioner as to the facts, if supported by substantial evidence, shall in like manner be conclusive.

The appeal does not stay procedure.

Sec. 15 (*f*) The commencement of proceedings under subsections (*d*) and (*e*) of this section shall not, unless specifically ordered by the court, operate as a stay of the commissioner's order.

The matter shall be heard expeditiously.

Sec. 15 (*g*) Petitions filed under this act shall be heard expeditiously, and if possible within 10 days after they have been docketed.

Investigatory powers.

Sec. 16. The commissioner may hold and conduct such hearings, investigations, and proceedings as may be necessary for the purposes of this act, and for such purposes the provisions of subsections (*b*), (*c*), and (*d*) of Section 21 of the Securities Exchange Act of 1934 relating to the administering of oaths and affirmations, and to the attendance and testimony of witnesses and the production of evidence (including penalties), shall apply. Hearings held in the course of and for the purpose of investigations authorized in subsection (*a*) of Section 5 of this act shall be held in the federal judicial district in which the field under investigation, or any part thereof, is situated.

Rules and regulations.

Sec. 17 (*a*) The commissioner shall have power to prescribe such rules as may be necessary for the execution of the functions vested in him by this act, including but not limited to rules requiring the keeping of records and the submission of special and periodical reports, and providing for the inspection and examination of such records.

(*b*) The power to prescribe and promulgate rules and regulations contained in this act shall include the power to alter, amend, modify, suspend the operation of, and rescind any such rules or regulations.

(*c*) Regulations promulgated under the authority of Sections 6, 7, and 8 of this act shall be published in the Federal Register and shall be subject to the provisions of the Federal Register Act, and shall be given such other publicity as the commissioner shall determine and the secretary shall approve.

(*d*) The secretary shall include in his annual reports to Congress such information, data, and recommendations for further legislation with respect to the subject matter of this act as he shall deem advisable.

TEXT OF NATIONAL LABOR ACT

script of the entire record in the proceeding, including the pleadings and testimony upon which such order was entered and the findings and order of the board. Upon such filing, the court shall cause notice thereof to be served upon such person, and thereupon shall have jurisdiction of the proceeding and of the question determined therein, and shall have power to grant such temporary relief or restraining order as it deems just and proper, and to make and enter upon the pleadings, testimony, and proceedings set forth in such transcript a decree enforcing, modifying, and enforcing as so modified, or setting aside in whole or in part the order of the board. No objection that has not been urged before the board, its member, agent or agency, shall be considered by the court, unless the failure or neglect to urge such objection shall be excused because of extraordinary circumstances. The findings of the board as to the facts, if supported by evidence, shall be conclusive. If either party shall apply to the court for leave to adduce additional evidence and shall show to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for the failure to adduce such evidence in the hearing before the board, its member, agent, or agency, the court may order such additional evidence to be taken before the board, its member, agent, or agency, and to be made a part of the transcript. The board may modify its findings as to the facts, or make new findings, by reason of additional evidence so taken and filed, and it shall file such modified, or new findings, which, if supported by evidence, shall be conclusive, and shall file its recommendations, if any, for the modification or setting aside of its original order. The jurisdiction of the court shall be exclusive and its judgment and decree shall be final, except that the same shall be subject to review by the appropriate Circuit Court of Appeals if application was made to the District Court as hereinabove provided, and by the Supreme Court of the United States upon writ of certiorari or certification as provided in Sections 239 and 240 of the Judicial Code, as amended (U.S.C., title 28, Secs. 346 and 347).

Provisions for appeals.

Sec. 10 (*f*) Any person aggrieved by a final order of the board granting or denying in whole or in part the relief sought may obtain a review of such order in any Circuit Court of Appeals of the United States in the circuit wherein the unfair labor practice in question was alleged to have been engaged in or wherein such person resides or transacts business, or in the Court of Appeals of the District of Columbia, by filing in such court a written petition praying that the order of the board be modified or set aside. A copy of such petition shall be forthwith served upon the board, and thereupon the aggrieved party shall file in the court a transcript of the entire record in the proceeding, certified by the board, including the pleading and testimony upon which the order complained of was entered and the findings and order of the board. Upon such filing, the court shall proceed in the same manner as in the case of an application by the board under subsection (*e*) and shall have the same exclusive jurisdiction to grant to the board such temporary relief or restraining order as it deems just and proper, and in like manner to make and enter a decree enforcing, modifying, and enforcing as so modified, or setting aside in whole or in part the order of the board; and the findings of the board as to the facts, if supported by evidence, shall in like manner be conclusive.

The appeal does not stay procedure.

Sec. 10 (*g*) The commencement of proceedings under subsections (*e*) and (*f*) of this section shall not, unless specifically ordered by the court operate as a stay of the board's order.

The matter shall be heard expeditiously.

Sec. 10 (*i*) Petitions filed under this act shall be heard expeditiously, and if possible within 10 days after they have been docketed.

Investigatory powers.

Sec. 11. For the purpose of all hearings and investigations, which, in the opinion of the board, are necessary and proper for the exercise of the powers vested in it by Section 9 and Section 10—

1. The board, or its duly authorized agents or agencies, shall at all reasonable times have access to, for the purpose of examination, and the right to copy any evidence of any person being investigated or proceeded against that relates to any matter under investigation or in question. Any member of the board shall have power to issue subpenas requiring the attendance and testimony of witnesses and the production of any evidence that relates to any matter under investigation or in question, before the board, its member, agent or agency conducting the hearing or investigation. Any member of the board, or any agent or agency designated by the board for such purposes, may administer oaths and affirmations, examine witnesses, and receive evidence. Such attendance of witnesses and the production of such evidence may be required from any place in the United States or any territory or possession thereof, at any designated place of hearing.

Rules and regulations.

Sec. 6 (*a*) The board shall have authority from time to time to make, amend, and rescind rules and regulations as may be necessary to carry out the provisions of this act. Such rules and regulations shall be effective upon publication in the manner which the board shall prescribe.

STATE CAPITALS

KANSAS

CRUDE-OIL BUYERS IN KANSAS nominated 184,974 bbl. per day estimated requirements of crude oil in December and the Kansas Corporation Commission took the figures under advisement on Monday.

REVISED RULES AND REGULATIONS governing the production of oil and gas in the state have been established by the Corporation Commission to become effective on December 1.

Potentials shall be determined by a physical test or by the drawdown method at the option of the operator or producer, provided that the director may require a physical test when the drawdown method, in his opinion, does not reasonably reflect the capacity of the well tested to produce oil.

No well shall be assigned a potential as a result of a drawdown test in excess of 3,000 bbl. per day, and if such well is making water the 3,000-bbl. maximum shall apply to the total liquid produced so that the maximum potential assigned to any such well shall be 3,000 bbl. per day, less the percentage of water.

The 15-bbl. minimum potential, as provided by law, was reinstated, with no 30-bbl. minimum allowed for wells on double the acreage, as previously authorized, for proration between pools.

Acreage on which a well is spaced will be considered, however, in determining production allowables, on a "productivity" basis, a combination of what the well is capable of producing and the acreage it drains.

TEXAS

THE RAILROAD COMMISSION OF TEXAS last week continued to hold hearings on fields in which operators desired allowable increases. In a few instances it granted higher allowables to some fields on which hearings had been held, and set dates for additional hearings in the forepart of December. One of the largest increases sought was in the Flour Bluff field of Nueces County, Costa Oil Co. joined by Barnsdall Oil Co. asked to have the net allowable raised from 29 to 40 bbl. per well daily. The additional crude, amounting to 1,200 bbl. daily, would be purchased by Humble Oil & Refining Co., also one of the operators in the field.

THE DECEMBER STATE-WIDE HEARING of the Railroad Commission, set for December 15, is expected to be devoted mostly to hearing of evidence on salt-water disposal problems of the East Texas field and a proposed change in the method of distributing allowables.

LIABILITY OF THE OWNER rather than the operator of the lease on which the well or wells may be located for taxes on oil payments was upheld by the Texas Supreme Court last week. The opinion, affecting the taxing program of the state and subdivisions against the interest or estate retained by grantors in various leases made, with a part of the price to be paid from oil production, was given in affirming a Court of Civil Appeals judgment in the case of Thomas O'Connor v. Humble Oil & Refining Co. and Quintana Petroleum Co. The suit developed in 1936 when Refugio County assessed Mr. O'Conner $9,900 ad valorem taxes alleged to be due on seven thirty-seconds mineral interest in 4,000 acres of land in the O'Connor field. When Mr. O'Connor leased to Quintana, which sold one-half interest to Humble, he, as lessor, was to be paid $2,000,000 out of seven thirty-seconds of the oil and gas produced, in addition to the one-eighth royalty he retained.

In effect, the judgment handed down by the court held that the seven thirty-seconds interest is taxable as a unit, and that the parties who have an interest in it are all liable for their respective portions of the tax. Mr. O'Connor at first was, therefore, liable for his full interest, but as he paid, the tax burden shifted to the operating companies in proportion to the payments made. After Mr. O'Connor has been paid in full, then the companies are liable for the entire ad valorem taxes. The court's opinion was written by Justice G. B. Smedley.

Capitol of Nebraska, newest oil-producing state, located in Lincoln, unique in architectural lines, and one of America's most highly acclaimed public buildings

LOUISIANA

DAILY ALLOWABLE PRODUCTION in Louisiana during December has been set by the Department of Conservation at 255,200 bbl., a reduction of 3,794 bbl. from the November schedule. Of the new allowable, 61,024 bbl. is allocated to North Louisiana fields, a decrease of 6,135 bbl. from the November allocation, while 194,176 bbl. is allocated to coastal Louisiana, an increase of 2,341 bbl.

OKLAHOMA

OKLAHOMA'S CRUDE-OIL PRODUCTION allowable for December was fixed at 437,600 bbl. daily, an increase of 8,600 bbl. over the November figure by the state Corporation Commission Friday. Acting on recommendations by producers and purchasers, the commission:

1. Lifted the 75-bbl.-per-well restriction on stripper wells and raised the maximum for Class D wells from 75 to 100 bbl. daily.
2. Raised percentages in Class B, including most of the Greater Seminole pools by about 10 per cent.
3. Raised the allowable for the Frederick Canyon-lime pool, in Class B, from 998 to 1,200 bbl.
4. Added the new Butcher and Pace pools near Earlsboro as unclassified prorated fields with a top allowable of 300 bbl. each.
5. Transferred three Class D pools—Hobart, Avoca and Adams—to the unclassified prorated division. The Hobart allowable was raised from 100 bbl. to 500, Avoca from 599 to 1,000 and Adams from 798 to 900.
6. Increased allowables of four unclassified prorated pools—North Earlsboro-Hunton from 300 to 400 bbl., North Earlsboro-Wilcox from 2,994 to 3,675, Gray from 699 to 750, and Traugh-deep sand from 699 to 800.

ILLINOIS

PROSPECTS FOR REGULATORY CONTROL over oil production in Illinois became more favorable with an announcement by Governor Horner that an administration bill for conservation of the state's oil resources has been prepared for approval of the industry. Although the governor did not specifically mention that the administration would introduce such a bill, his statement including a promise that he would vigorously fight to conserve the state's resources, is indicative of his stand implying endorsement of such a measure and its introduction in the forthcoming special session of the legislature.

Despite administration backing, its passage, it is believed, will not have easy going. In a special session two-thirds of the votes of the house and the senate must be favorable. This means that 102 representatives of the 153 must vote for the measure and than 34 of the 51 senators also must give assent.

ARKANSAS

ALLOWABLE PRODUCTION IN ARKANSAS in December has been fixed by the Arkansas Oil and Gas Commission at 69,442 bbl. per day including 28,920 bbl. from the old settled fields and 40,522 bbl. from the controlled fields including Atlanta, 450 bbl.; Buckner, 2,456 bbl.; Magnolia, 18,985 bbl.; Schuler (sand), 15,009 bbl.; Schuler (lime), 2,399 bbl., and Village, 1,223 bbl.

CALIFORNIA

CENTRAL COMMITTEE OF CALIFORNIA Oil Producers, at its first meeting since the defeat of the Atkinson oil-control bill, set the daily crude-oil allowable for December at 599,000 bbl. which is the currently prevailing allowable. The committee is giving consideration to probable stoppage of Japanese shipments of crude and refined oil after January 26, 1940, at which time the United States-Japan trade treaty ceases by expiration of the prescribed 6-month notice.

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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What's the Answer?

What can be done about the marketing problems of the oil industry?

This question, in one form or another, is being raised again in all parts of the country, reflecting the fact that at many points the retail and wholesale markets are as unsatisfactory as they have ever been.

The importance of this to the entire industry was apparent in the interest shown at the annual meeting of the American Petroleum Institute when representatives of all branches of the industry attended the open session of the Institute's marketing committee.

So far as the Institute is concerned it was made plain that any activities in that organization would have to follow the same general line as the production and refining divisions which are largely confined to technological subjects.

The technical problems in marketing, in contrast to those in producing and refining, are of a minor nature. The real problems of merchandising in the oil business, as in all businesses, are fundamentally economic.

Before this year is finished 55 billion gallons of petroleum products will have been distributed within the borders of this country. This amounts to 150,000,000 gal. daily, or more than 1 gal. per capita a day.

It is to be kept in mind that this is the revenue end of the oil business. What those in the retail and wholesale branches take out of their cash registers determines what can be paid for labor, equipment, raw material, and dividends for the rest of the industry.

A movement up or down of one-tenth of a cent per gallon means a difference of $55,000,000 in the yearly revenue of the industry. Forty-four per cent of the gross distribution is represented in gasoline sales. An average reduction of 1 cent a gallon in gasoline means the lowering of yearly gross revenue by over $200,000,000, or approximately the same as the cash dividends declared last year by 32 of the larger operating companies.

It is absurd to sit back and say nothing can be done about this unsatisfactory condition on the ground that any action having economic significance would be frowned upon by federal representatives. There is no basis for that assumption, and there never has been.

The recent decision of the Circuit Court of Appeals in the Madison case showed there were many things which the industry could do and, in fact, is obligated to do as a protection to itself and to its customers.

It is possible that the industry by leaning too closely on the "play safe" advice of counsel may bring down upon its head the very condemnation it seeks to avoid.

Certainly there could be no harm done in a frank discussion of marketing problems. There are many that need to be discussed at this time, with the assurance that there will be many others when these pass.

There may be merit in the suggestion of some that an outside agency should be employed to make an investigation as to the fundamental nature of the industry's marketing problems, with suggested solutions. Or some good might be accomplished by reviving the sections of the marketing code which in pre-N.R.A. days obtained the approbation of the Federal Trade Commission.

While many of the retailing problems are out of the hands of the industry proper, the entire oil business has an interest in what goes on there, and should be able to advise on the distribution of its finished products.

There is no reason, legal or otherwise, why these problems should not be discussed. There is no time to waste in establishing whatever forum is necessary to discuss them openly. The obvious solutions would follow.

Here is a clear case in which there is more danger in omission than in commission.

Oil Governors Are Invited to Oppose Federal Control

TOPEKA, Kans., Nov. 27.—Governors in the Mid-Continent oil field will be invited tomorrow to participate in a conference for concerted action in combating threatened federal control of the petroleum industry. This announcement was made today by Gov. Payne Ratner after a closed meeting with oil men from Oklahoma and Kansas. Time and place for the conference will not be known until after the Kansas chief executive gets in touch with governors of Oklahoma, Texas, Arkansas, Louisiana and New Mexico.

Today's meeting was devoted to a discussion of federal control as proposed in a bill introduced in Congress by Rep. W. P. Cole, Democrat, Maryland.

The second specific topic on the agenda was the reciprocal trade pact with Venezuela, through which duties on petroleum from this South American republic were cut in half. The trade agreement, to take effect on December 16, might cause another crisis in the American petroleum industry and prove to be a serious blow to oil-field workers, landowners and independent producers, Governor Ratner explained.

No definite information was released as to the strategy contemplated in the fight against these two measures.

, At the party were: Former Gov. Alf M. Landon, Republican presidential candidate in 1936 and an independent oil operator; W. G. Skelly, Tulsa, president of Skelly Oil Co.; Burdette Blue, Bartlesville, of the Indian Territory Illuminating Oil Co.; Frank Prior, Tulsa, president of the Stanolind Oil & Gas Co.; Tom Johnson, Wichita, independent operator; Ralph Pryor, Wichita, chairman of the Kansas Oil Advisory Committee; Walter Fees, Iola, independent operator, and Kansas Republican Committee chairman, and Harold Medill, attorney for the Kansas Corporation Commission.

Col. Ernest O. Thompson, Austin, chairman of the Interstate Oil Compact Commission, wrote Governor Ratner today that the compact members must cooperate in presenting their case against the Cole bill, but Governor Ratner signified that any joint action should come from the "interested governors, rather than the Compact Commission itself."

A meeting of compact representatives is scheduled for Wichita December 14. It is believed a governors' conference might be arranged in connection with this meeting.

Supreme Court Sustains Judge Stone's Dismissals

WASHINGTON, D. C., Nov. 27.—An appeal for a rehearing of its case against Judge Patrick T. Stone of the western district of Wisconsin for setting aside the verdict of the jurors against 11 defendants in the Madison trials is expected to be made to the U. S. Supreme Court by the Government.

The court announced that it had divided four to four and thus automatically upheld the Seventh Circuit Court, which had sustained Judge Stone.

Because the ruling was announced in a brief per curiam opinion, there was nothing to indicate how the judges had stood. There were, however, conjectures that Justices Black, Reed, Frankfurter, and Douglas had sided with the Government, and Justice McReynolds against, leaving Chief Justice Hughes and Justices Stone and Roberts to speculation. There is nothing to prevent the Department of Justice from seeking a reconsideration when a ninth justice is appointed to succeed Mr. Butler.

The present decision does not dispose of all the Madison cases. The federal Circuit Court at Chicago last July reversed the conviction of 5 individuals and 12 companies and ordered a new trial which has been postponed pending an appeal to the Supreme Court by the Government, yet to be argued.

Meanwhile the trial of those indicted in what is known as the second Madison case, that regarding jobbing agreements, had been set before Judge Walter C. Lindley at Danville, Ill., for October 14, but has been postponed.

The 11 defendants dismissed by Judge Stone were:

Globe Oil & Refining Co. of Kansas; A. V. Bourque, Tulsa, secretary of Western Petroleum Refiners Association; Dan Moran, president, Continental Oil Co.; Henry M. Dawes, president, Pure Oil Co.; Jacob France, president, Mid-Continent Petroleum Corp.; Allan Jackson, Chicago, vice president in charge of sales, Standard Oil Co. of Indiana; C. L. Jones, vice president, Socony-Vacuum Oil Co.; Frank Phillips, president, Phillips Petroleum Co.; Bryan S. Reid, general manager, Chicago division, Socony-Vacuum Oil Co.; Edward G. Seubert, president, Standard Oil Co. of Indiana; and W. G. Skelly, president, Skelly Oil Co.

DEATHS

JOHN LAURENCE FINDLEY, 69, retired oil man of Oil City, La., died last week.

WALTER HAROLD DRAPER, 50, former driller in the Fort Norman and Peruvian fields, died at Christie Military Hospital, Toronto.

O. H. P. THOMAS, 59, Tulsa oil producer, died November 22. He was a native of Kentucky, and had been actively engaged in the oil business for 25 years.

JOHN W. STEARNS, employed by the Carter Oil Co. in Tulsa from 1918 to 1931 when he was transferred to Seminole, died in Dallas, Tex., last week. He retired in 1933.

GEORGE C. McINTOSH, 83, for many years associated with the late W. H. McGarvey in the development of the Galician oil fields, died recently at Oliver, British Columbia.

JOSEPH A. KELL, 41, Wichita Falls, Tex., was killed in an automobile accident November 21 when his car left the pavement and crashed into another. He was the son of Frank Kell and was vice president of the Deep Oil Development Co., Wichita Falls.

C. B. TURNER, 65, senior vice president of South Penn Oil Co., died in Pittsburgh, Pa., November 21. He was born in West Sunbury, Pa., in 1874. His career with the South Penn began as a roustabout in the Mount Morris, Pa., and Shuman, W. Va., districts in June, 1894. The following year he was made a pumper in the Mannington, W. Va., district, and in 1899 a driller in the Salem, W. Va., district, and in June 1900 was appointed foreman there. In December 1902 he was made superintendent of the Folsom, W. Va., district, and in December 1911 superintendent of drilling tools. He became a division superintendent in West Virginia in 1914 and general superintendent of the West Virginia division in 1918. In 1920 he was promoted to general manager of that division and in 1923 made general manager of the southern division. In 1930 he was elected to the board of directors and in 1932 was elected vice president and made general manager of the West Virginia and Kentucky divisions.

CHARLES EASTBOURNE, 66, early-day independent oil operator in Oklahoma, died in Dallas, Tex., November 22. Born at St. Joseph, Mo., he entered the oil business in 1911 and at one time owned a small development between Tulsa and Muskogee, Okla.

JOE MODISETT, 41, of El Dorado, Ark., owner of the Modisett Drilling Co., died November 24 in Tulsa. He had been operating in Arkansas fields since the early boom days of 1921, and had also operated in Louisiana, Mississippi and other states. With James Garrett, now of Longview, Tex., he was responsible for the discovery of the old Champagnolle field near El Dorado.

Cole Committee to Texas, Illinois and Louisiana

WASHINGTON, D. C., Nov. 27.—The Cole committee hearings at New Orleans December 13 will be confined to representatives of state conservation commissions, and invitations have been sent to representatives of the governors of California, Nebraska, and Illinois which have no conservation commissions, and to Col. Ernest O. Thompson as chairman of the Interstate Compact Commission. Other witnesses will be heard at hearings in Washington in January.

In the meantime the committee will visit Illinois, stopping at Mattoon for hearings on December 8 and 9. It will then proceed to East Texas on the following day and on December 11 will visit Shreveport, La., before going on to New Orleans.

Railroads Ask Rate Cut On Petroleum Products

Rail carriers sought an overall 38 per cent decrease in intrastate rates on railroad petroleum products at a hearing November 27 before the Oklahoma Corporation Commission. The railroads' plea was opposed by truckers.

THE MARKETS*

CRUDE OIL: An increase of 221,404 bbl. per day in the production of Texas last week brought total United States production to a point exceeded only once this year, and then in midsummer. There were no price changes. A well in the Yates pool in Texas, good for 34,000 bbl. per day, and the excitement over Devonian-lime production discoveries in Illinois were outstanding features.

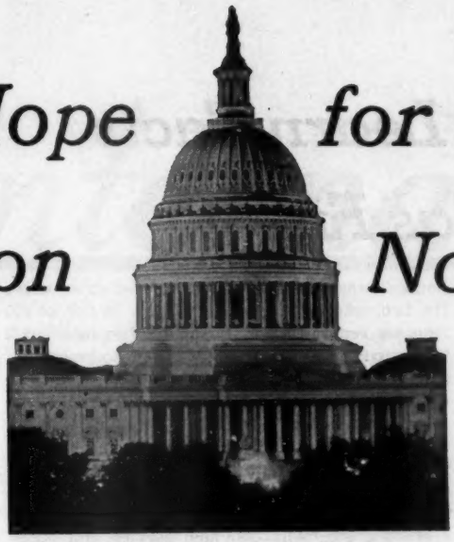
REFINERY: Failure to slacken refinery runs continue to exercise a weakening effect on the gasoline market, notwithstanding a high rate of consumption. Light and heavy fuel oils are improving their position, and record winter demand is forecast. Tightness of lubricants and wax is uninterrupted. Natural gasoline shows signs of slipping.

TANK WAGON AND POSTED DEALER: Socony-Vacuum advanced its tank-wagon price of gasoline 0.3 cent in all boroughs of New York. Other refiners were expected to follow.

FINANCIAL: Although a few oil issues moved into higher territory, the trend was downward, along with the general market. Average of 30 representative stocks for week ended November 25: High, 27.85; low, 26.63; close, 26.87. Week ended November 18: High, 28.09; low, 26.93; close, 27.51.

*Detailed information in market section.

Japanese Hope for New Pact; Washington Noncommittal



By HENRY D. RALPH

WASHINGTON, D. C., Nov. 27.—The petroleum industry, particularly West Coast exporters, has a big stake in the attitude which the American State Department will take toward Japan 2 months hence, when the treaty of commerce and navigation expires January 26.

If no new agreement is reached this country will be in position to oppose serious obstacles to continued trade between Japan and the United States, and there is a possibility that exports of petroleum may be greatly curtailed if not cut off completely. Japanese officials express confidence a new agreement will be negotiated; but the State Department insists no consideration is being given to this matter.

The United States-Japanese commercial treaty of 1911 was abrogated by the State Department July 26, with the required 6 months' notice. The official reason was that the treaty was somewhat out of date and that commercial relations with Japan needed to be reconsidered; but it is no secret the principal reason was that Japan has been interfering with American property rights and trade relations in China and the abrogation was a means of putting pressure on Japan to revise its China policy. At that time there was pending before the Senate committee on foreign relations a number of resolutions proposing to embargo exports on various commodities, including oil, to nations violating the nine-power pact, which would mean Japan. The State Department took the attitude that such resolutions would violate the 1911 treaty; and it appeared unlikely any action would be taken on the resolutions, when without warning the State Department issued notice the treaty would be cancelled. This leaves the way open for Congress to enact embargo legislation unless the State Department interposes some new objection. Regardless of congressional action, however, there are many things which the ad ministration may do to hamper Japanese trade and consequently Japanese military activities in China, if President Roosevelt and Secretary Hull determine on this policy. From the standpoint of the oil industry the most serious action would be imposition of tonnage taxes on Japanese tankers and other vessels entering American ports.

Tonnage Tax

A statute of 1804, still in effect, provides for the assessment of what is called "light moneys" of 50 cents per net ton on vessels of foreign registry entering American ports. This fee is seldom imposed, because through treaty or executive order the commercial ships of all maritime nations are granted access to American ports at charges no higher than those imposed on American ships; but, in special cases, light moneys have been assessed against vessels transferring to American registry in a foreign port and against alien-owned fishing boats and private yachts.

In the absence of a commercial agreement with Japan these light moneys probably would be assessed against Japanese vessels. As Japanese tankers are believed to measure between 5,000 and 8,000 net tons, this would mean a fee of between $2,500 and $4,000 every time a ship entered an American port.

A later statute imposes a penalty tonnage tax of 30 cents or 50 cents per net ton, depending on the type of vessel and the circumstances involving its entry; and in most cases this penalty tax has been added to the light moneys making a total tax of 80 cents or $1 per ton. Whether or not the penalty tax would apply to Japanese tankers, the light moneys alone would be sufficient to make petroleum trade prohibitive. For several years few, if any, American tankers have been engaged in the Japanese oil trade, and it is doubtful they would enter this business if it were the policy of the Government to curtail petroleum exports to Japan. Japan's only alternative would be to charter tankers of some other nationality; and this probably would be very difficult.

The president could by proclamation prevent the assessment of light moneys against Japanese vessels, but whether he will do so depends upon the policy adopted toward Japan in general. It is learned, however, that government officials have been making a study of this almost forgotten light moneys statute so when the time comes the administration will be prepared to declare its policy.

To Cut Benefits

After the expiration of the 1911 treaty, Japan will not enjoy the status of a most favored nation, now enjoyed by all countries except Germany. This will mean Japanese imports will not obtain the benefit of reductions in duties made in reciprocal trade agreements and generalized to all other nations on the most-favored-nation basis. In addition, if the president makes a finding that Japan discriminates against American goods or American commerce, all Japanese goods can be subjected to penalty duties of from 10 per cent to 50 per cent above regular duties, and a number of other obstacles may be placed in the way of Japanese trade. For some months government officials have been carrying on a study of Japanese foreign trade to determine whether there is actual discrimination against American goods.

Thus, if the administration is sufficiently angry with Japan over its invasion of China and decides it is a good policy to block United States-Japanese trade as much as possible, it can impose heavy penalties on this trade without further action by Congress. Such administrative steps would probably induce Congress to supplement them with embargoes on exports of petroleum and other products. Japan would undoubtedly retaliate, so the situation would get worse instead of better, and many American industries in addition to California oil exporters would suffer, particularly cotton producers, since cotton is one of our largest exports to Japan. It is no secret that both the president and influential officials in the State Department are intensely angry over the Japanese invasion of China and infringement of American rights in the Orient, and by January 26 it will probably become apparent whether the administration has decided to try to punish Japan, even at great cost to our foreign trade.

A straw in the wind is that the State Department last week issued a statement declaring no negotiations are going on either in Tokyo or Washington in regard to commercial treaty relations between the two countries. The statement added that studies are being made of every fact bearing on relations between the countries but the negotiation of a new agreement will depend on developments. It is possible the State Department is taking this attitude to scare Japan into making more concessions than might be obtained otherwise; but many observers in Washington feel the administration is determined to take strong measures against Japan, and that it will be a long time before another commercial treaty is negotiated. A way out might be a modus vivendi or working agreement under which trade between the two countries could continue on a more or less normal basis even without a treaty; but this would not prevent the United States from imposing penalties on Japanese ships and imports.

Gradual Action

The administration probably would prefer to squeeze Japan's foreign trade and petroleum purchases gradually and indirectly rather than to have Congress enact an embargo on sales of oil. A congressional act of this kind would be considered by Japan as a direct affront and might give that nation an excuse for taking drastic steps to obtain a supply of oil elsewhere. Such steps conceivably might include a military expedition against the Netherland East Indies, and the State Department does not want to have this country put in the position of aiding and abetting such a move. If obstacles were put in the way of the sale of American oil to Japan that country might also make an arrangement with Mexico to obtain large quantities of Mexican crude obtained from properties expropriated from American owners and might even assist in constructing a pipe line to the west coast of Mexico.

It is understood American sales of oil to Japan for the past couple of years have been strictly on a cash basis, so absence of a commercial treaty and consequent difficulties in extending credit and making collections would not be a factor in making oil deals. However, if Japanese exports to this country are curtailed Japan's dollar exchange will be greatly reduced and this will make it more difficult for it to pay cash for petroleum. In this event Japan would probably make even more strenuous efforts to obtain other sources of oil.

The difficulties facing Japan in obtaining petroleum, if American oil is embargoed or obstacles such as tonnage taxes placed in the way of oil exports, are pictured in detail in an article by V. R. Garfias, of Cities Service Co., in The Oil and Gas Journal of August 31, in which it is pointed out Japan probably could not fill its petroleum needs without American oil and there are not sufficient Japanese tankers to keep it supplied if oil is obtained from sources more distant than California.

Oil Companies Learn Facts About Lagunillas Fire

NEW YORK, Nov. 27.—Further information was developed on the Lagunillas fire by oil companies in an effort to combat the inferences given in some press dispatches and by radio commentators that they were responsible. The facts, so far as obtainable by oil companies in communication with Caracas by telephone, cable and letter, are that on November 22 only 30 bodies had been recovered in contrast to first press dispatches that 800 lives had been lost. Venezuela officials investigating the fire believe that practically all persons have been accounted for and that the casualty list will not be much extended. There were only two hospital cases as the result of the fire and only seven first-aid treatments, both of which were for burns.

Authenticated reports from many sources were that there was no film of oil on the lake. The report that the Mene Grande pipe line had broken and that escaping oil had "run into windows of the houses" was denied. The break, two days before the fire, resulted in the loss of only 25 bbl. of oil. Another report that a film of oil "an inch thick blanketed Lake Maracaibo" was said to be equally ridiculous since the area of the lake would require approximately 4,000,000,000 bbl. of oil to form an inch-thick covering. Lagunillas was not an oil town. Instead, it was a community composed of tax-free, rent-free shacks built over the waters of the lake on stilts which were occupied by storekeepers, saloon-keepers, gambling-house operators, etc., who provided service and entertainment for the oil-field workers who lived in camps provided by the companies some distance away.

The fire was caused by a woman who had inexpertly attempted to light a gasoline lamp. When the lamp caught fire she threw it on the boardwalk, the only means of escape to the mainland.

FRANK PHILLIPS

(Continued from Page 17)

He paused and in a tone of disgust asked, "Say, do you think I ever will make a golf player?"

Hesitating a moment, the pro reluctantly conceded, "I—I have my doubts, sir."

Frank Phillips gave his driver a preliminary whirl, flung it with all his might, and stalked from the course. He never was interested in golf after that. If he could not play a creditable game, he did not care to play at all.

Character-building movements, such as the Y.M.C.A. and Boy Scouts, have come to occupy a large place in Mr. Phillips' life. And there are churches that speak gratefully of him. His activtivities in such fields are without sectarian leaning.

Tuesday of this week Mr. Phillips reached his sixty-sixth birthday. The occasion was marked by a big celebration, arranged by company employes, friends, and the people of Bartlesville. In the parade, which formed a conspicuous feature, was a group that particularly delighted Uncle Frank. It was made up of youngsters disguised as circus figures—clowns, bareback riders, trapeze performers, and so on. The purpose was not merely to amuse onlookers. It was a way of saying "Thank you" to the man who had provided free circus tickets for some 4,000 children of Bartlesville and vicinity last summer.

Business responsibilities have not driven from the mind of Frank Phillips memories of days back in Creston when there was no money for circus tickets.

TOWNSITE WELL

(Continued from Page 15)

tensions to the northwest in Township 6n-10w, have been recorded this year, and it was beginning to look as if there was no limit to the field in that direction until a dry hole was completed early in November.

Ray Stephens, Inc., the Oklahoma City operator who started the present play in 1938 with the 3,500-bbl. extension in Section 27-6-10w, gave it another boost a few weeks ago with completion of a 60-bbl. producer in NW NW SE Section 21-6-10w, about 1 mile from production. It found oil in sand at 3,305-15 ft.

Then the same operator moved one location west in NE NE SW Section 21, found a 40-ft. dip in formations and the well was dry and abandoned in sand at 5,050-58 ft., total depth.

A dry hole like that would have marked the end of activity in that direction in most fields, but not at Cement. This is a field in which geologists say "every well provides its own geology, without depending upon correlations in other wells." Indeed, it is not unusual at Cement for a big oil producer in a certain sand to be offset on one side by a gas producer from the same sand, while another offset is dry in the same sand.

So, not one whit discouraged by the outpost failure, Ray Stephens, Inc., announced locations for three additional northwest extension outposts the past week at No. 1 Wallis, SE SE SW Section 15-6-10w; No. 1 Rector, SW NW NW Section 24-6-10w, and No. 1 Holmberg, NW NE NE Section 28-6-10w.

The Stephens firm has eight other tests in the northwest sector, ranging from locations to wells nearing completion. Palmer Oil Co. has a producer near completion in Section 34-6-10w, on the south side of the extension district; and Phillips Petroleum Co. has a well near completion in Section 35-6-10w. On the east side there are eight active operations in addition to the tests in Section 3-5-9w and the townsite.

Few fields have more pay zones than Cement, where oil or gas, or both, are found in sands and limes beginning at around 1,600 ft. and going to 6,300 ft. Pay zones are variously named, such as Caddo and Fortuna sands in Permian Red Beds, Noble-Olson sand, basal Permian, Rowe sands, Wade sands, Deese sands, etc. They occur at intervals of every 100 ft. or so.

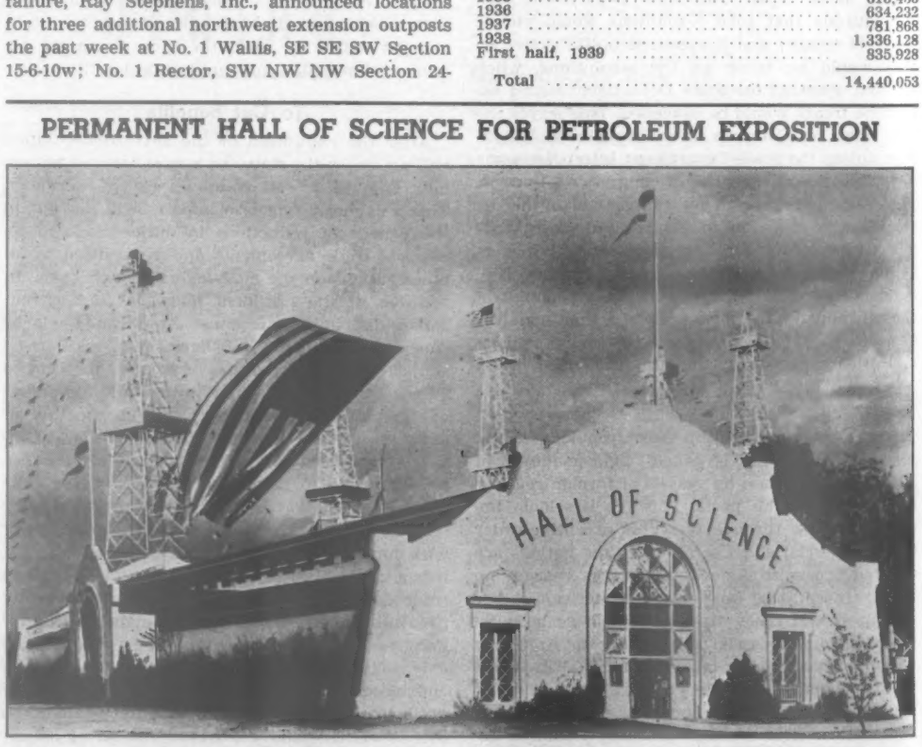
Cement's big need is a larger market. Anderson-Prichard Oil Corp. up to now has been the sole purchaser of oil, moving it to the nearby refinery at Cyril. Lately, Bell Oil & Gas Co. has indicated it would take 3,000 bbl. of Cement oil daily, while Peppers Gasoline Co. has said it would take 2,000 bbl. daily. This will require the taking of potentials on all wells, and ratable taking.

It has been estimated that potential of the field has increased 25,000 bbl. daily since the first of the year, but the allowable remained unchanged. It has just been hiked a few hundred barrels to 7,000 bbl. for December, and prospects are beginning to look brighter at Cement.

CEMENT PRODUCTION

1922	878,375
1923	833,467
1924	720,187
1925	582,097
1926	623,566
1927	710,568
1928	684,630
1929	535,975
1930	1,307,198
1931	1,222,353
1932	649,067
1933	789,415
1934	699,544
1935	615,455
1936	634,232
1937	781,868
1938	1,336,128
First half, 1939	835,928
Total	14,440,053

PERMANENT HALL OF SCIENCE FOR PETROLEUM EXPOSITION



The Hall of Science at the International Petroleum Exposition at Tulsa is to become a permanent exhibit of scientific and technical equipment in the oil industry and is open to oil men and the public at all times under plans of the exposition's scientific committee headed by Gustav Egloff and Dr. Charles K. Francis. The exhibits will be changed from time to time in accordance with progress in oil equipment and advancement of new methods in the oil industry. The exhibit which is to be on display from May 18 to 25, 1940, will form the nucleus of the permanent exhibit.

International

Mexico . .

Negotiations On for Imports From Mexico

NEGOTIATIONS between Petroleos Mexicanos and one or more American oil companies were reported in press dispatches from Mexico City late last week to have reached an advanced stage looking to the shipment of Mexico's exportable crude surplus to the United States. Exports from Mexico this year touched a high mark of a little more than 2,500,000 bbl. in July, but have shown a steady decline since, and particularly after the European war cut off shipments to Germany.

Production has been curtailed in the past three months in line with the restrictions imposed by the war on exports, but the country is considered capable of exporting regularly about 2,000,000 bbl. per month, or 64,500 bbl. daily, above its present commitments to Italy and to the bunkering of foreign ships.

The negotiations reported leading to movement of all surplus to the United States were launched only after the trade agreement with Venezuela slackened the tariff barrier on petroleum imports to this country. Assuming that approximately 60,000,000 bbl. of petroleum will move from foreign sources to the United States under the reduced import duty in 1939, about 30 per cent of this total would accrue to Mexico if the reported negotiations are carried to conclusion.

Final decision of the Mexican Supreme Court on the constitutionality of the expropriation decree and the law itself was not reached last week. Advice reaching New York indicated that the Supreme Court justices are continuing their discussion of the points set out in the suggested opinion.

No mention was made in the Mexico City dispatches of what American firms are involved in the current negotiations. Declaration by Eastern States Petroleum Co. three weeks ago that it intended to enter the domestic market with products derived from Mexican crude oil and the relationship between that company and the government oil monopoly indicate that at least it would be involved in the transaction.

Meanwhile, the trade agreement with Venezuela which lowered by half the import duty on crude and fuel-oil up to 5 per cent of the preceding year's runs to domestic refinery stills, brought repercussions in Washington. Representative W. E. Disney, of Oklahoma, brought a charge that the State Department exceeded its powers under the reciprocal trade agreements act by reducing the excise tax on oil. In supporting the complaint, Mr. Disney quoted from the report of the ways and means committee on the trade agreements act in 1934 as follows:

"In order that the necessary reciprocity may be accorded, the president is empowered to promise that existing excise duties which affect imported goods will not be increased during the term of any particular agreement. It should be carefully noted, however, that the president is given no right to reduce or increase any excise duty. His power of reduction of duties is limited to those which are in fact customs duties."

Mr. Disney said that if the action taken under the Venezuelan agreement had been contemplated or foreseen by Congress, specific language would have been inserted in the act, or likely it would not have passed.

Venezuela . .

Mene Grande Shipments Blocked By Dock Fee

MOVEMENT of Oficiana-field crude oil through the 100-mile, 16-in. line to Guanta remains blocked by a difference between Mene Grande Oil Co. and others interested in the line with government officials. The line was finished and dedicated in October, but, before the first tanker was connected to terminal loading tanks, government officials attempted to levy a dock charge amounting to more than 40 cents (U.S. currency) per bbl.

Plans had been formulated to ship approximately 45,000 bbl. per day over the Guanta dock built by Mene Grande Oil Co., but, in view of the charge which the government attempted to levy by delving into terms of an old mining concession several years ago, use of the harbor was delayed. Negotiations are under way between the government and the companies interested in the pipe line to adjust their differences, but no solution has been possible up to the present.

Meanwhile, development in the Oficina field is continuing at the accelerated rate, but this will be moderated considerably in the near future unless agreement is reached with the government on use of the company's loading dock at Guanta. Mene Grande dredged the harbor and built the dock as a part of its construction program to make Oficina oil available to world markets. The company also built a road paralleling the pipe line over the entire distance of 100 miles which is now available for public use.

The new 10-in. pipe line connecting the Jusepin field, southwest of Quiriquire, with the new refinery at Carapito, a distance of approximately 60 miles, has been completed and is now in service. The Jusepin field, discovered in the latter part of 1938, had been dependent upon tank trucks for movement of its high-gravity production into shipping channels prior to completion of the line. The field was discovered and is under development by Standard Oil Co. of Venezuela, a subsidiary of Creole.

There have been no new field developments of importance reported in Venezuela in recent weeks. The most advanced drilling operation in the El Roble district, about midway between Oficina and the northern seacoast, is Standard of Venezuela's second test which is now drilling below 8,100 ft. The discovery well was drilled to around 9,500 ft. Socony-Vacuum Oil Co.'s No. 1 Guario, northeast of the San Joaquin production, is drilling around 2,500 ft. after setting 13⅜-in. pipe at 2,355 ft. and will continue to approximately 5,000 ft. without coring.

Texas Co.'s No. 1 Rincon Largo, in the State of Anzoategui and south of the El Roble producing well, is drilling at 6,655 ft., and the company's No. 1 Los Caritos, in the State of Monagas, is drilling at 5,575 ft.

Colombia-Peru . .

Slight Gain in Columbia, Slight Decline in Peru

ALTHOUGH a slight gain in the rate of crude-oil production was registered in Colombia during September the increase failed to indicate that any substantial war demand was made on that country. Total production for September was 1,894,941 bbl., or daily average of 63,165 bbl., compared to 62,934 bbl. daily in August. Total production for August was 1,950,966 bbl.

For the first nine months of the current year, Colombia production totaled 16,203,216 bbl., against 15,710,955 bbl. for the same 1938 period. Since the middle of November Colombian production has been increased by the approximate rate of 15,000 bbl. per day which is moving into European and South American markets from Covenas, the shipping terminal for the South American Gulf Pipe Line Co. which is moving oil regularly from Colombian Petroleum Co.'s Barco concession on the Venezuelan border.

Another slight decline was registered in Peruvian production during September. Total output for the month was 856,759 bbl., a daily average of 28,559 bbl., compared to a total of 865,070 and daily average of 28,836 bbl. in August During the first nine months Peru produced 8,154,611 bbl. this year against 9,953,915 bbl. for the 1938 period.

Previous sources of information on Colombian and Peruvian production were closed at the end of August because of the European war which accounts for the tardy presentation of September statistics.

Argentina . .

Y.P.F. Asking Bids on From 70 to 100 Wells

BIDS will be opened in the New York office of Argentine Government Oilfields December 22 on the drilling and completion of from 70 to 100 wells in 1940 in the Comodoro Rivadavia field. Invitations to bid with a complete list of specifications have been sent to leading drilling contractors throughout the United States.

A departure from customary practice in this country is proposed by Yacimientos Petroliferos Fiscales, the Argentine Government petroleum company, in the specifications placed in the hands of American contractors. The Y.P.F. proposes that the contractors supply all necessary equipment for completion of the wells they drill into lease tanks. All necessary equipment for consummation of the project is to be permitted entry into Argentina duty free.

The current program is the first contract drilling work considered by Y.P.F., which until now has conducted its own exploitation to the exclusion of private interests. Normally, Y.P.F. drills from 150 to 180 wells annually in the Comodoro Rivadavia field, and it is assumed the government agency will continue its operations.

Refinery Expansion

Houdry Catalytic Cracking Capacity Greatly Expanded

Early in 1940 the combined operating capacity of Houdry catalytic cracking units will exceed 150,000 bbl. daily. At present the combined capacities of these units in operation is in excess of 115,000 bbl. daily. The bulk of the capacity is in the United States and thus far is accounted for primarily by installations in the refineries of the Socony-Vacuum Oil Co., Inc., Sun Oil Co., and the Standard Oil Co. of California. Socony-Vacuum is the largest single user having completed three units in the past month and three more will be placed in operation at its plants before the close of the year. When the three units now under construction in its refineries at Augusta, Kans., East St. Louis, Ill., and Paulsboro, N. J., are completed, Socony-Vacuum and its operating subsidiaries in this country will have just under 100,000 bbl. per day of catalytic cracking charging capacity. Depending on local circumstances, these units are handling naphthenic and paraffinic crudes, reduced crudes, and a wide variety of cuts as charging stock.

The latest unit to go on stream is Socony-Vacuum's Trenton plant at Detroit where some advancements in design have been incorporated and where the catalytic cracking unit has been combined with reforming and balanced with a full crude topping operation. The unit has a crude charging capacity of 20,000 bbl. per calendar day and the catalytic cases are built to handle 10,500 bbl. per day.

The recently completed Beaumont, Tex., Houdry unit No. 2 at the Magnolia Petroleum Co. plant is a combination unit of 20,000 bbl. per day crude capacity and 15,000 bbl. per day of catalytic cracking capacity.

The third Socony-Vacuum catalytic cracking unit, placed on stream this month, is at Buffalo, N. Y. This is also a combination unit including crude topping, reforming and 10,000 bbl. of catalytic cracking capacity.

The East St. Louis, Ill., plant (Lubrite division) is designed to handle 13,500 bbl. of crude charging stock and 10,000 bbl. daily to the catalytic cases and is due to start operation about December 1.

The Augusta, Kans., unit (White Eagle division) will handle 18,000 bbl. of crude with 10,000 bbl. per day of catalytic cracking.

The last unit in the present construction program of Socony-Vacuum at Paulsboro, N. J., is scheduled for completion January 1. This unit will have catalytic case charging capacity of 10,000 bbl. per day and will supplement the first commercial Houdry unit built in this country which has a capacity of 2,000 bbl. per day.

In August Socony-Vacuum started operating its catalytic cracking unit at Brooklyn, N. Y. (Long Island City). This plant is now functioning without interruption.

Ownership of Talco Plant Changed by Merger

A check of Talco and Sulphur Bluff field pipe line and refining properties is now under way, the culmination of which, together with the signing of final papers, will bring a change in ownership of the Talco Asphalt & Refining Co. and the Talco Pipe Line Co., both of Dallas.

By the ownership shift, Byrd-Frost, Inc., of Dallas, has turned its interest in the properties to the Talco Asphalt & Refining Co., recently reincorporated with new officers to conform to the change in ownership.

In the change American Liberty Pipe Line Co. and Eugene Constantin, Jr., both of Dallas, acquire a quarter interest each in the properties with the remaining half interest being held by Capt. J. F. Lucey and Ralph E. Fair, both of Dallas.

The company's plant at Mount Pleasant, Tex., can handle 7,000 bbl. of the heavy Talco crude daily, converting it largely into asphalt and road oil. The original cost was approximately $1,500,000.

American Liberty and Mr. Constantin also acquire an interest in the Talco Pipe Line Co., which feeds the plant from the field. This was brought about through a merger of American Liberty's gathering system in the two-field area with the Talco system.

Also the new company acquires the properties of the Paluxy Refining Co., of which Mr. Constantin was head. Paluxy formerly operated a 5,000-bbl.-daily refinery at Talco, which was partly destroyed by fire several months ago. Such equipment as can be salvaged now is to be moved to the Mount Pleasant plant to increase its capacity by probably 2,500 bbl. daily.

Captain Lucey is to be president of the new company, while Mr. Constantin is to be vice president and general manager, and Toddie L. Wynne, American Liberty president, a vice president.

The trade is understood to have involved $500,000, of which $50,000 was in cash, with the balance payable $5,000 monthly.

Hydroforming Unit Planned for Pan American at Texas City

NEW YORK, Nov. 28.—Work of designing a 7,000-bbl. hydroforming unit to be constructed next year by M. W. Kellogg Co. for Pan American Refining Corp. at its Texas City, Tex., refinery is well under way. The process involves the catalytic reforming of naphthas to high-octane motor fuel. Feed stock for the Pan American hydroforming unit will consist of heavy naphtha taken from the two combination units now in operation at Texas City.

Two years ago Pan American added a duplicate of its first combination unit and increased crude-oil capacity of the refinery to 79,000 bbl. per day.

The hydroforming unit for the catalytic reforming of heavy naphtha now under design for the account of Pan American Refining Corp. is the first commercial-scale plant employing this particular process which has been in various stages of laboratory and pilot-plant development for 5 or 6 years. Numerous oil companies have contributed in one form or another to development of the process. Equipment previously used in a somewhat similar operation at the Standard of New Jersey, Bayway, N. J., refinery is scheduled to go on stream sometime in December using the latest developments in the hydroforming process. Essentially, the process consists of converting low-octane virgin or cracked naphthas to high-octane aviation-gasoline base stock. Construction work on the Pan American hydroforming unit will start next February or March and is scheduled for completion by November 1940.

Work Pushed at Phillipsburg Plant

The Cooperative Refining Co. of Phillipsburg, in northwestern Kansas, is rushing construction on its new refinery there, while its pipe-line division is pushing work on a pipe line to the Burnett pool of Ellis County.

Humble Enlarges Refinery At Corpus Christi

Humble Oil & Refining Co. has awarded contract to Brown & Root Construction Co. for major expansions and alterations to its refinery at Corpus Christi, Tex. Construction will add to and reconstruct present cracking and skimming units. Details have not been officially announced but the program will involve the expenditure of several million dollars.

Natural-Gas News

Columbia Gas Simplifying Its Corporate Setup

Columbia Gas & Electric Corp. has asked the Securities and Exchange Commission to approve elimination of a subsidiary, the Warfield Natural Gas Co., in another move toward simplification of its holding-company structure. The S.E.C. previously received a general plan of integration for the Columbia Gas holding company and also has before it an application relating to the Atlantic Seaboard setup.

Under a proposed plan of reorganization, United Fuel Gas Co., another Columbia Gas subsidiary, will acquire all the assets of Warfield Natural Gas Co. for 5,470 shares of its common stock and the assumption of all the liabilities, obligations and indebtedness of that company. Warfield Natural Gas Co. will then be dissolved and the stock distributed to Columbia Gas & Electric Corp. as a liquidating dividend.

Upon consummation of the plan, United Fuel Gas Co. will fund its indebtedness to the parent company, consisting of $12,035,000 of its 6 per cent demand notes, $9,790,000 of the 6 per cent demand notes of Warfield Natural Gas Co. to be assumed and $2,500,000 of loans on open account, by the sale to the parent company of $24,325,000 of 4½ per cent notes due January 1, 1970, the proceeds of which will be applied to the payment of the indebtedness.

Gas Utility Revenues Gain in September

Revenues of manufactured and natural-gas utilities amounted to $55,470,000 in September 1939 as compared with $53,598,200 for the corresponding month of 1938, an increase of 3.5 per cent, it was announced by Paul Ryan, chief statistician of the American Gas Association. Revenues from industrial and commercial users rose from $18,696,000 a year ago to $20,414,400 in September 1939, a gain of 9.2 per cent. Revenues from domestic uses such as cooking, water heating and refrigeration, etc., were $35,055,600 for September 1939, as compared with $34,902,200 a year ago, an increase of 0.4 per cent.

The manufactured-gas industry reported revenues of $28,615,200 for the month, an increase of 0.8 per cent from the same month of the preceding year. Revenues from commercial sales of manufactured gas gained 0.9 per cent, while revenues from industrial uses were 11.2 per cent higher than for September 1938. Revenues from domestic uses were substantially unchanged from the corresponding period of 1938.

The natural-gas utilities reported revenues of $26,854,800 for the month, or 6.5 per cent more than for September 1938. Revenues from sales of natural gas for industrial purposes increased 13.4 per cent, while the increase in revenue from sales for domestic purposes was 1.3 per cent.

Carbon Black Prices Advanced in Boston

BOSTON, Mass., Nov. 27.—Prices quoted on carbon black shipped in bags to the domestic market for the first quarter of 1940 have been advanced ¼ cent a pound to 2½ cents a pound, it was announced by Godfrey L. Cabot, Inc., third largest producer, accounting for about 20 per cent of the total national output.

Henderson Granted Increase In Sour-Gas Output

AUSTIN, Tex.—An order of the Railroad Commission authorized F. C. and E. P. Henderson to increase

the production from 13 wells in the sour-gas area of the West Panhandle gas field in the event of emergencies caused by line breakage or failure of supply from other sources. The increase was limited to 10 per cent of the open flow and the order stipulated the wells should be classified as exempt from future production schedules of the commission.

Lone Star Gas Co. Wins Review in Rate Case

AUSTIN, Tex.—The Lone Star Gas Co. won a state Supreme Court review of a judgment by the Austin Court of Civil Appeals upholding a widespread rate reduction.

The controversy, arising from a Railroad Commission order attempting to reduce the company's city gate rate from 40 to 32 cents per thousand cubic feet, has been in the courts several years.

The state's highest tribunal said it would review the lower court decision January 17 because of the importance of questions involved.

The commission's order would reduce gas rates in approximately 270 Texas cities. The higher state courts originally upheld the decree but the U. S. Supreme Court sent the case back to the Austin Court of Civil Appeals.

Natural Gasoline

Texas Commission Adopts Butane Regulations

AUSTIN, Tex., Nov. 27.—Rules for handling butane, one of the state's rapidly growing industries, were adopted last week by the Texas Railroad Commission.

The action was taken swiftly at a meeting here. Commissioner Ernest O. Thompson had proposed that the 1939 insurance underwriters rules on the handling of butane gas be adopted.

The underwriter regulations set up standards for construction and installation of tanks and for transport of fuel.

Liquid-storage containers are limited to 30,000 gal. Aboveground containers must be 25 ft. from the nearest building or property line if they hold 126 to 500 gal. and 50 ft. if the content is over 500 gal. No underground container may be closer than 10 ft. to a building. Aboveground containers must be painted with a heat-reflecting surface equivalent to white or aluminum.

Date to make the rules effective has not been selected.

It was estimated there are about 300 butane dealers in Texas.

Pipe-Line Activity

I.C.C. Report on Gasoline Pipe-Line Transportation

Statistics on the transportation of motor fuel by pipe line, made public by the Interstate Commerce Commission, show that the total volume of motor fuel transported by all lines east of the Rockies in the third quarter of 1939 amounted to 20,434,733 bbl., compared with 19,627,157 bbl. in the corresponding period of 1938. Total transportation revenues were $6,860,602, against $6,789,409 in the third quarter of a year ago.

Keystone Pipe Line Co., a subsidiary of the Atlantic Refining Co., reported 4,145,182 bbl. transported, against 3,746,432 bbl. in the corresponding 1938 period, while revenues were $823,356, compared with $738,583 in last year's third quarter. This line extends from the Atlantic Refining Co.'s refinery at Philadelphia westward to Pittsburgh and Buffalo, supplying intermediate points.

Great Lakes Pipe Line Co., which operates a system extending from Oklahoma refineries to Chicago and St. Paul and intermediate points, transported 4,517,123 bbl. of motor fuel in the third quarter, compared with 4,887,373 bbl. in the corresponding quarter of 1938, a decrease of 370,250 bbl. The transportation revenue decreased from $2,929,054 to $2,751,430.

Phillips Pipe Line Co. system from the Texas Panhandle to Kansas City, transported 3,922,676 bbl. of motor fuel in the third quarter compared with 3,930,541 bbl. in the same period of last year, a decrease of 7,860 bbl. Revenues decreased from $1,972,273 to $1,948,152. This line has now been extended to Chicago.

Ickes Holds Hearing on Utah Pipe-Line Case

WASHINGTON, D. C.—Secretary Ickes has assurances from the Utah Oil Refining Co. of Salt Lake City, that it would meet all requirements placed upon it by the Department of the Interior for its "unintentional" trespass in constructing an oil pipe line across public domain in Wyoming and Utah without a permit.

Secretary Ickes explained that final decision would be postponed for a few days, pending determination of the conditions to be imposed. He said:

"I do not welcome such a precedent as will have been established in this case of an oil company going on the public domain and making a use of it in a way not justified by the statutes. If this were condoned corporations could use public land just as if they owned that land in fee simple.

"In this instance, I don't think that there was any deliberate intent to violate the law or the regulations of the department. I think, however, that there was a high degree of carelessness. Perhaps people were not as regardful as they might have been of the rights of the federal Government."

Records showed the company, on August 7 and 11, filed applications for rights-of-way for a pipe line to carry the oil from Fort Laramie, Wyo., to Salt Lake City across the public domain. The applications, received at the Evanston and Cheyenne, Wyo., district offices, were suspended because of failure to include full information. Explained by its officials today as an "oversight," the company proceeded to build approximately 450 miles of the pipe line—142 miles of it on the public domain—without official permission.

Emergency demands upon the company to meet competition also resulted in the construction of 218 miles of telephone lines and three smaller feeder lines, as well as three pumping stations, it was revealed, all of which construction was carried on without authority of law.

First Oil Through Utah Line Reaches Salt Lake City

SALT LAKE CITY, Utah, Nov. 26.—Crude oil from the 438-mile pipe line of the Utah Oil Refining Co. flowed into storage tanks here at 1:20 p. m. today. It was the first oil carried by a major pipe lines across the Continental Divide and had been on its way from the Lance Creek field in eastern Wyoming since October 15, said E. H. Holt, vice president in charge of manufacturing for the company.

Four Wyoming pumping stations, at Fort Laramie, Medicine Bow, Wamsutter and Granger, helped move the oil across the high Rocky Mountains. The elevation of the pipe line ranges from 4,300 ft. at Fort Laramie to 7,138 ft. just east of Wamsutter.

Approximately 7,500 bbl. of oil will be received through the line every 24 hours.

Basin Pipe Line Co. to Lay Wasson-Denver Line

FORT WORTH, Tex.—Organization of a pipe-line company to construct a 93-mile 6-in. line from the Wasson-Denver field of Gaines and Yoakum counties to Big Spring, Tex., moved one step nearer this week as directors of the company were announced and organization plans neared completion.

Directors of the company, which is to be known as the Basin Pipe Line Co., will include C. L. McIver, of this city, who has negotiated contracts with five of the field's producers for some 5,000 bbl. of oil daily; Henry Zweifel, president of Cosden Petroleum Corp.; and Myron G. Blaylock, attorney of Houston and Longview, Tex. Cosden has contracted to purchase the oil for 5 years, paying the field posted price plus a 12½-cent charge to the carrier for delivery to its Big Spring refinery. The pipe-line company is contracted to begin purchasing oil on January 15, 1940.

State Title to Yates Land Upheld by Court

AUSTIN, Tex.—The state's title to 28 acres of oil land in the Yates field, Pecos County, as vacant land, was upheld by the Supreme Court in an opinion which also decided claims to leases on the tract.

Leases held by M. D. Bryant of San Angelo, Cardinal Oil Co. and Dogie Oil Co. were ruled valid. The court reformed the trial court judgment to the extent that claims of others not parties to the suit are not affected.

Directors, officers, committee chairmen and speakers luncheon given by the California Natural Gasoline Association as a part of its fourteenth annual fall meeting

PROGRAMS AND MEETINGS

West Central Texas Meeting, Mineral Wells, December 11

Pres. A. J. Frazier, of the West Central Texas Oil and Gas Association, announces that the eighth annual meeting of the association will be held at the Baker Hotel, Mineral Wells, Tex., December 11. Frank Buttram, of Oklahoma City, new president of the Independent Petroleum Association of America, and Judge J. C. Hunter will speak at the annual banquet.

The preliminary program follows:

General theme of program of the day: "Is It True—What They Say—About the Petroleum Industry?"

9 a.m.—Registration, lobby, Baker Hotel.

12 noon—Directors luncheon. This will be a business session, and attendance will be restricted to directors of West Central Texas Oil and Gas Association.

3 p.m.—Open-forum session. Harold G. Neely, Fort Worth, chairman. All people directly or indirectly engaged in or affected by the petroleum industry are urged to attend this meeting. The subjects to be discussed are of concern to every citizen of West Central Texas. Among them will be:

"Workmen's Compensation Costs."

"Ad Valorem Taxes—School, County, and State."

"State Regulations With Reference to Allowables, Exceptions, and Reports."

"Federal Control and Regulation of the Industry."

"Our Position Regarding Additional State Excise Taxes."

"Why the General Public in This Region Should Support the West Central Texas Oil and Gas Association as Associate Members."

"What Should Be Done About Well Spacing."

Other matters of equal importance will be included on this program.

7 p.m.—Annual banquet and program.

J. D. Sandefer, Jr., Breckenridge, master of ceremonies. Gridiron and floor show.

Speakers: J. C. Hunter, Abilene, president of general Mid-Continent Oil and Gas Association, and past president of West Central Texas Oil and Gas Association.

Frank Buttram, Oklahoma City, president of Independent Petroleum Association of America.

East Texas A.P.I. Meeting Planned for Kilgore

The last meeting of the East Texas chapter of the American Petroleum Institute, Division of Production, to be held during the calendar year 1939 is scheduled for December 12, 1939, in the high school auditorium at Kilgore, Tex. At this meeting, new officers will be elected for next year and the activities of the chapter for the year 1939 brought to a close. The program beginning at 8 p.m. in the high school auditorium will include a motion picture in technicolor with sound, showing the manufacture of cement. This picture is furnished through the courtesy of the Lone Star Cement Co.

A paper dealing with the location of oil-well pumps at various levels in East Texas oil wells will be presented by M. L. Mayfield, engineer for Cities Service Oil Co. in the East Texas field, with headquarters at Gladewater. Mr. Mayfield has conducted extensive tests in the field on this problem and has arrived at some very definite conclusions in connection with the efficiencies that may be expected, and the horsepower savings that will result. There are several other companies who now have pumps located at different levels in East Texas wells; representatives have been asked to discuss the performance of such installations at the December 12 meeting.

A program of entertainment has been scheduled as a fitting climax to the activities of the chapter for the present year, Chairman R. D. Risser having made a personal selection of the talent. The usual A.P.I. dinner party will be held at the Kilgore hotel prior to the meeting in the high school.

The proposed officers for the chapter for 1940 follow:

Chairman, J. P. Straight, Cities Service Oil Co., Gladewater. Vice chairmen, Robert M. Bass, Sinclair Prairie Oil Co., Troup; Murray C. Sells, Sells Petroleum, Inc., Longview; B. E. Moir, Atlantic Refining Co., Longview. Secretary-treasurer, E. B. Miller, Jr., Tide Water Associated Oil Co., Kilgore. Assistant secretary-treasurer, D. M. Kerr, Lufkin Foundry & Machine Co., Kilgore.

Advisory committee: R. D. Risser (chairman), Shell Oil Co., Inc., Kilgore; L. P. O'Neill, General American Oil Co., Gladewater; J. W. Steele, Federal Tender Board, Kilgore; Albert Carter, Railroad Commission of Texas, Kilgore; M. L. Brown, Sun Oil Co., Kilgore; C. D. Hubbard, Weaver-Crim Corp., Laird Hill; N. G. Moore, Empire Pipe Line Co., Gladewater; Harvey Lee, Magnolia Petroleum Co., Greggton; W. H. Wiginton, Atlantic Refining Co., Longview; M. E. Zoller, Central Commercial Oil Co., Kilgore; N. N. Jones, Humble Oil & Refining Co., Overton; John W. Russell, drilling contractor, Kilgore; D. Cyril Daugherty, Arcadia Refining Co., Overton; R. W. Sole, Arkansas Fuel Oil Co., Longview; J. E. Springer, Tide Water Associated Oil Co., Kilgore; C. E. Taber, C. L. McMahon, Inc., Tyler; R. J. Ranck, Wise & Jackson, Tyler; C. C. Sloan, Ohio Oil Co., Henderson; Mr. Collins, Texas Co., Gladewater; H. P. Ross, Ross Construction Co., Longview; W. Reed, Premier Refining Co., Longview; M. A. Finney, Pure Oil Co., Van.

Program committee: John E. Murrell, Shell Oil Co., Inc., Kilgore; F. A. Schell, Jr., Stanolind Oil & Gas Co., Greggton; F. J. Mikeska, Gulf Oil Corp., Kilgore; J. C. Randolph, National Supply Co., Kilgore.

Membership committee: Phil Montgomery, Halliburton Oil Well Cementing Co., Kilgore; R. T. Lewis, Hercules Motors, Kilgore; W. H. Bowden, construction contractor, Tyler; Frank Thyng, Oil Well Supply Co., Kilgore; Fred Frasher, Fox Rig & Lumber Co., Kilgore.

Gas-Measurement Course Date April 16-18

At a meeting of the general committee of the Southwestern Gas Measurement Short Course held in Dallas, Tex., the dates of April 16, 17 and 18, 1940, were selected for holding the 1940 short course at the College of Engineering, University of Oklahoma, Norman, Okla.

CALENDAR OF EVENTS

December

SEVENTEENTH EXPOSITION OF CHEMICAL INDUSTRIES, Grand Central Palace, New York, December 4-9.

MID-CONTINENT OIL AND GAS ASSOCIATION, general association standing tax committees, Rice Hotel, Houston, Tex., December 7-8.

WEST CENTRAL TEXAS OIL AND GAS ASSOCIATION, Mineral Wells, Tex., December 11.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Philadelphia, Pa., December 4-7.

PETROLEUM ELECTRIC POWER ASSOCIATION, eleventh annual conference, Texas State Hotel, Houston, Tex., December 14-15.

MID-CONTINENT OIL AND GAS ASSOCIATION, annual meeting of general board, Tulsa, December 18.

January 1940

SOCIETY OF AUTOMOTIVE ENGINEERS, annual meeting, Book-Cadillac Hotel, Detroit, Mich., January 15-19.

February

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, New York, February 12-15.

March

AMERICAN SOCIETY FOR TESTING MATERIALS, Statler Hotel, Detroit, Mich., March 4-5.

AMERICAN PETROLEUM INSTITUTE, Mid-Continent district, Division of Production, Wichita, Kans., March 14-15.

AMERICAN PETROLEUM INSTITUTE, Southwestern district, Division of Production, Houston, Tex., March 28-29.

April

WESTERN PETROLEUM REFINERS ASSOCIATION, annual meeting, Allis Hotel, Wichita, Kans., April 1-2.

AMERICAN CHEMICAL SOCIETY, Cincinnati, Ohio, April 8-12.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, annual meeting, Stevens Hotel, Chicago, April 10-12.

AMERICAN PETROLEUM INSTITUTE, eastern district, Division of Production, Columbus, Ohio, April 11-12.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, April 18-19.

May

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Dallas, Tex.

NATURAL GASOLINE ASSOCIATION OF AMERICA, annual convention, Hotel Tulsa, Tulsa, May 15-17.

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.

AMERICAN PETROLEUM INSTITUTE, midyear meeting, Fort Worth, Tex. May 27-31.

June

AMERICAN SOCIETY FOR TESTING MATERIALS, Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-28.

October

NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago, October 7-11.

November

AMERICAN PETROLEUM INSTITUTE, twenty-first annual meeting, Stevens Hotel, Chicago, Nov. 11-15.

No Antitrust Policy Change, Says Justice Department

WASHINGTON, D. C., Nov. 27.—The fact that no individuals were indicted by the federal grand jury in Los Angeles, which brought an indictment against 39 oil companies and two trade associations for conspiracy to fix West Coast gasoline prices, does not indicate a change of policy in antitrust enforcement, according to officials in the Department of Justice.

Department attorneys who handled the investigation have not returned to Washington, and officials here are reluctant to discuss the indictment beyond indicating it was within the province of grand jury to fail to bring indictments against individuals if it concluded the evidence did not warrant a trial. There is no indication the department will not continue to attempt to prosecute officials of corporations accused of antitrust violations, even though courts are exhibiting a tendency to hold a corporation may be guilty and its officers innocent.

This somewhat anomalous situation was forceably illustrated last week when a jury in the federal court in South Bend, Ind., convicted the General Motors Corp. of antitrust violations in conjunction with financing the installment sale of automobiles through its dealers, and at the same time refused to convict any of the officials named in the indictment. It is possible that both the Government and the corporation will appeal this case on the same ground, namely, that a corporation can act only through its officials and employes, and that if a corporation is guilty so are its officials, or conversely, if the officials are not guilty, neither is the corporation. The appeal of the General Motors case, therefore, may have an important bearing on the trial of the Los Angeles indictment, and also on the future course of antitrust enforcement.

Texas to Lease Bay Areas On the Gulf Coast

AUSTIN, Tex.—Some 300,000 acres of submerged land in portions of San Antonio, St. Charles, Aransas, Matagorda, Corpus Christi and Copano bays will be offered for lease January 2, the state School Land Board decided. The board, in a meeting attended by Chairman Bascom Giles, land commissioner, and Gerald C. Mann, attorney general, fixed royalty on the areas at one-eighth and will award the lease to the highest cash bidder.

"I think it to the best interest of the state to fix the royalty and lease the acreage to the highest cash bidder, specifying no other type of bid would be considered," Chairman Giles said.

The land was described as "unproved wildcat area" the first of that type of land acted on by the newly created board.

Sealed bids on tracts will be received by the board up to 10 a.m. January 2.

Some Gulf Coast Refineries To Reduce Their Runs

HOUSTON, Tex., Nov. 28.—An increase of 126,843 bbl. in unsold stocks of motor-fuel gasoline was reported Tuesday by member companies of the Gulf Coast Refiners Association for the week ended November 25, bringing the total to 846,885 bbl.

It was further announced that Republic Oil Refining Co. is reducing its crude runs to stills from 450,000 bbl. to about 350,000 bbl. per week, about 55 per cent of the capacity of the Texas City plant. Taylor Refining Co. during December will reduce its runs to approximately 55 per cent of the present capacity of 20,000 bbl. at its Corpus Christi plant.

Tide Water Associated Wins Safety Awards

At the recent Congress of the National Safety Council in Atlantic City, N. J., Tide Water Associated Oil Co.'s eastern fleet was awarded first prize in the tanker division of the marine section of the safety contest. During the year that fleet had the smallest number of disabling injuries of any of the fleets competing.

Tide Water Associated Oil Co., in its Tide Water division, had only five disabling injuries in 1,161,904 man-hours worked. The total man-hours worked by all companies competing in this group aggregated 18,981,703 hours. The Associated division was awarded a certificate of merit for having attained third highest honor in the same group, the company's Pacific Coast fleet having sustained seven disabling injuries in 677,288 man-hours worked.

John H. Brown, in charge of accident prevention for Tide Water division, received both awards on behalf of the company.

Automobile Retail Sales Up 46% in 10 Months

Automobile retail sales in the United States during the 10 months ended with October showed an advance of 46 per cent over the same period of last year, according to the Automobile Manufacturers Association. During the 10 months 2,624,738 motor vehicles were delivered to consumers. October retail sales of passenger cars and trucks, amounting to 277,158 units, were 82 per cent ahead of October 1938.

October retail sales of passenger cars totaled 236,180 units, compared with 134,984 last year, or a gain of 75 per cent.

Drilling of Second Well Temporarily Enjoined

AUSTIN, Tex.—The Railroad Commission's order permitting York & Lawley to drill a second well on a 2.64-acre tract in the Hawkins East Texas field, Rusk County, was set aside by the Third Court of Civil Appeals and a temporary injunction granted at the instance of Gulf Oil Corp. forbidding the drilling and production of the well. The well has been drilled and the injunction will prevent production when bond is made. If the parties cannot agree on the bond the court will fix it after hearing.

The permit was granted "to prevent confiscation of property" and the appellate court holds that the first well, "even at its improper location," is amply sufficient to protect vested rights.

Extent of Devonian Lime At Salem Still in Doubt

Extent of the productive limits of the Devonian lime in the Salem, Illinois, pool was still in doubt early this week with May Pray's No. 5 Cole, SE NW SE Section 16-2n-2e, the second test to the lower pay within the field, still not completed. Operators were rigging up standard tools to drill in after running casing to test a show at 3,445-60 ft. The test was running slightly lower on the Devonian than it was on the Benoist.

Max Pray's No. 6 Ferguson, C N½ NW NW Section 18-7n-3e, a test to the Devonian in the Louden field, was waiting on orders, and it was reported it would not be completed until after the Salem test had been completed. Total depth was 3,246 ft. after topping the pay at 3,163 ft. It was unofficially reported Tuesday that the well had been abandoned.

Interstate Compact Meeting at Wichita May Be Postponed

AUSTIN, Tex.—Chairman Ernest O. Thompson may postpone the meeting of the Interstate Oil Compact Commission called for December 14 at Wichita, Kans., because of the hearings by the Cole committee at New Orleans, December 13-15.

Colonel Thompson had announced the meeting would prepare the oil states for a fight against federal control of the oil industry.

"The oil compact has made great progress," the chairman asserted. "We have absolutely prevented overproduction and that was the cause of all the excitement in the beginning. This should go to the compact's credit.

"Some people might say, 'How about the Connally Act?' but I call attention to the fact that the states set their own production figures and the Connally Act does not apply unless the state-set quota is exceeded."

He added that federal control would be no more perfect than state regulation and would result only in duplication of effort.

He said the suggestion had been made that the federal Government join the compact, adding:

"For the states, this would be like getting in bed with a bear."

SPECIAL SECTION

. . . Starts next page

Describing Mid-Continent's deepest test—Continental Oil Company's 14,582-foot No. 1 Proctor . . .

Test Indicates Potentialities Electric Rig for Deep

By HARRY F. SIMONS

THE Continental Oil Co.'s No. 1 Proctor, C NW¼ Section 28-10n-20w, Washita County, Oklahoma, which was recently plugged back from 14,582 ft., was not expected to break any record and the fact that it has become the Mid-Continent's deepest test is incidental to the main objective, namely the discovering of geological facts which would indicate the trend of further prospecting in the area.

The various revisions of plans and equipment used for drilling reflect the resourcefulness of the supervisory and operating personnel and the determination of the Continental Oil Co. officials to obtain the geological information hidden in the Anadarko basin. L. P. Carpenter, general superintendent of production for Oklahoma, Kansas and Illinois for the Continental Oil Co., with offices in Ponca City, Okla., had charge of the drilling while E. C. Wilbur, assistant general superintendent and A. B. Cook, district superintendent, assisted. Fain Drilling Co., of Oklahoma City, were the contractors on the job. C. A. Urice, tool pusher, supervised the drilling crews under the direction of Glenn Linn, general superintendent, and Leslie Fain, president. Lee Hunter, geologist, and Don Edwards, mud engineer, both of the Continental Oil Co., were supervisors of their respective branches during the drilling of the test.

The test is the most important drilled in the Mid-Continent in a number of years as it has provided further information necessary to prospecting in the Anadarko basin which occupies the greater part of western Oklahoma. This vast area has long been an enigma to the geologists and studies of the outcrops on the edges have been unsuccessful in determining the structure in the central part of the basin. Some production from Pennsylvanian formations has been obtained on its flanks but logs of wells drilled to date do not indicate favorable conditions in the basin.

The basin rises steeply on the east and west due to buried mountains which affect the structure of the area. Dip of the formations along the flanks is very steep, at times approaching the vertical. No wells drilled away from the flanks have been successful in penetrating formations older than the Pennsylvanian, leaving in doubt the depth at which the top of the Mississippian formations may be expected.

Recent discoveries of producing structures within several shallower basins in the United States give rise to hopes that a similar condition may exist in the Anadarko basin but at much greater depths, possibly 20,000 ft. With the thick formations present, oil wells in the area would undoubtedly be large ones with the possibility of pressures much in excess of those known to date. The Proctor test indicates that drilling difficulties in the area will be caused mostly by the caving shales in the Pennsylvanian. It also shows that the drilling machinery being manufactured today for use in deep fields will need only slight increases in size for much deeper drilling. The Proctor well is the deepest test ever drilled by a diesel-electric rig.

Left: Standby hoist. Below: Going in the hole on the No. 1 Proctor

Above: Standby engine and platform. Left: Engines and generators for supplying current

More than 15 months were required to drill tthe test to its total depth of 14,582 ft. and the last 3 months were spent mostly in fishing. The first bad fishing job occurred shortly after its first birthday when the pipe became stuck in shale at 14,479 ft. and a wash-over job, the deepest ever attempted, was necessary. Since then only 103 ft. of hole has been made. Pipe was stuck on several occasions before reaching 14,000 ft. but was freed after only a few days delay. The fact that there were no twistoffs or pipe failures of any kind is a commendation to the drilling crews and a reflection of the betterment in the quality and durability of present-day drill pipe.

The test is still active, plugging back and testing operations now being in progress. The test started rigging up on July 27 and drilling started on August 3, 1938; the short time required to rig up on the test can be credited to the efficiency of modern drilling organizations as no more time was used in assembling machinery for the No. 1 Proctor than for the average wildcat test.

The drilling rig used is a diesel-electric rig which has drilled several other deep wildcats and has been used on proven-field drilling; there was no major revamping of the equipment before rigging up on the Proctor well. Some slight revisions and the addition of auxiliary equipment have been made since the test started. Main units of the rig which was purchased from the Continental Supply Co., consist of two Fairbanks-Morse, opposed-piston, two-cycle, six-cylinder, 300-hp. diesel engines with speed range from 900 to 1,200 r.p.m. Engine pistons are 5 in. in diameter with 7-in. stroke; crankshafts are located at the bottom and top. These are believed to be the only engines of this type in use in the drilling business at this time. They are equipped with an instrument panel with gages to show the exhaust, water and

# of Diesel-Drilling

Top: 300-hp. motor with air blower to prevent heating, capable of 750-hp. continuous load for 1 hour. Bottom: View of circulating pits. Also shows relative location of derrick, generators and pumps

lube-oil temperatures, the condition of the fuel oil and the revolutions per minute of each engine.

Each engine drives directly a 140-kw. and a 50-kw. direct-current General Electric generator and drives a 25-kw. exciter through V-belts. The larger generators have a capacity of 560 amp. and 250 volts continuous at 40° C. and 1,200 r.p.m. The smaller generators have an output of 200 amp. and otherwise resemble the larger ones. The auxiliary unit consists of a 160-hp., four-cycle, eight-cylinder Fairbanks-Morse diesel engine with 5½ by 7½-in. pistons and a speed range of from 900 to 1,200 r.p.m., driving a 50-kw. direct-current General Electric generator having the same characteristics as the generators on the larger engine sets; it is equipped with a 15-kw. exciter. Each generating unit is enclosed by a steel shed attached directly to the heavy steel supporting skids. The switchboard and control panel is likewise mounted on skids and enclosed in weatherproof steel case. No buildings are necessary for protecting the units from the weather.

Great Flexibility Afforded

The arrangement of the generators and motors gives great flexibility as three circuits are available to the driller; and any one generator, or any combination of generators can be connected to any motor desired. With both large engines running, the two 140-kw. generators are in parallel on one control circuit and the two 50-kw. generators are in parallel on a second control circuit. The third control circuit is provided for the auxiliary unit and is operated separately from the main generating equipment; it can thus be operated as a separate unit for generating current for driving the hoist or mud pump. The auxiliary generator can be paralleled with either or both of the 140-kw. generators or can be paralleled with either or both of the 50-kw. generators.

For normal drilling the large generators are connected to the mud-pump motors and the small generators are connected to the hoist motors. For hoisting, the two 140-kw. generators are connected to the hoist and the two 50-kw. generators can be used for operation of the pumps. The 50-kw. generator can be added to either circuit if desired. Any one generator, or any combination of generators can be connected to any motor desired. For example, if it is desired to mix mud while drilling, the two large generators provide current for the mud-circulating pump, the two small generators provide current for driving the mud-mixing pump and the auxiliary unit provides current for driving the rotary table. Any other desired distribution of current is permitted through the control board. Current distribution is controlled from the derrick floor.

Current for lights, vibrating screen, blower motors and other auxiliary loads is provided by one of the 25-kw. exciters and current for the control circuits and the excitation of the generators is provided by the other 25-kw. exciters. The 15-kw. exciter on the auxiliary is a standby. When the rig is shut down or rigging up, a 7½-kw. emergency light plant is available for lights or operation of the air compressor.

The switchboard is fully automatic with remote controls located at the driller's position; the driller thus has complete control of all motor circuits and blower motors from the derrick floor. Speed of the engine fans is controlled by the engine man at the switchboard. The blower motors are interlocked with the generators so that none of the motors can be started unless its blower is in operation, and the starting of any motor is delayed by a time relay until the blower has been operating long enough to expell any gases which might have accumulated in it.

All the generators are protected by a thermal overload relay. The switchboard is foolproof, it being impossible to complete any connection that would result in damage to the generators or motors. All of the auxiliary control switches are concentrated on one control panel. Coordinated design of the generators to the engines prevents stalling due to overload.

Meet New Problems

In drilling the No. 1 Proctor, problems developed which required more flexibility and greater concentrations of the power output of the generators. This was accomplished by certain changes of the control and generator-armature circuits in the switchboard; this was done by I. W. Hynd, electrical-engineering contractor, Seminole, Okla., in conjunction with General Electric Co. engineers.

Two Gardner-Denver 7¾ by 20-in. power-driven mud pumps were rigged up on the test. One is driven through 12 V-belts by a 300-hp., 900-r.p.m. mill-type General Electric motor and the other is driven in a like manner by a 250-hp. motor; each motor is equipped with a blower for cooling. A unique feature of the pump arrangement is the suction manifold which makes it possible to obtain heavy mud from the mixing pit or the regular mud from the circulating pit. By manipulation of the valves on the suction and discharge manifolds, heavy mud can be pumped directly into the standpipe; if a slower raising of the mud weight is desired, the mud can be pumped to the vibrating screen where it mixes with the fluid coming from the well bore.

The standby pump is a 7¼ by 14-in. Gardner-Denver pump, driven by a 150-hp., two-cylinder, horizontal Fairbanks-Morse diesel engine. It also is connected to suction manifold which will permit its picking up mud from the circulation pit, the reserve pit or the mixing pit. The discharge is likewise arranged to allow disposition of the mud into the derrick standpipe, into the circulating pit or over the vibrating screen.

The regular hoist is a UBLS 54 Emsco with three shafts, each 9 in. in diameter, driven through a Falk reduction gear by a 350-hp., 750-r.p.m. General Electric motor capable of 750 hp. continuous output for 1 hour without overheating. It has a no-load speed of 1,320 r.p.m., an important factor in reducing the time required to go in the hole. The hoist has an equalizing brake and is equipped with a No. 40 Parkersburg hydromatic brake. The hoist motor is equipped with a special blower to prevent its becoming overheated.

A 46MA Emsco hoist having three 8-in. shafts and driven by a 150-hp. two-cylinder, horizontal Fairbanks-Morse diesel engine is used for a standby. The dead line is spooled around the drum but

(Continued on Page 44)

Continental Supplies Drilling Equipment

FOR THE MID-CONTINENT'S DEEPEST TEST

A credit to the industry . . . to men and materials, is the achievement of the Fain Drilling Company in carrying the Proctor No. 1 to the extraordinary depth of 14,582 feet, establishing a new record for the Mid-Continent Fields.

Proud of the achievement and proud to have supplied the Diesel-electric and accessory drilling equipment, The Continental Supply Company takes this opportunity to pay public tribute to the men who made this record possible and to the machines which met the rigid requirements of such deep drilling.

THE CONTINENTAL SUPPLY COMPANY
DALLAS, TEXAS

General view of Continental's No. 1 Proctor

Role of Metals in Deep-Well Drilling

By W. L. NELSON

THE difficulties that are encountered in drilling a deep test such as the Continental's No. 1 Proctor are the same as those encountered in any modern drilling project except to a magnified degree. The severe conditions may be emphasized by noting a few facts about operations similar to No. 1 Proctor, such as:

1. At 14,479 ft. the stretch of the drill pipe is 12 to 14 ft. or about 0.1 per cent. Many ordinary carbon steels would be permanently deformed or stretched under such a load.

2. Large derricks which can support more than 500,000 lb. or 250 tons are employed. To offer some idea of this tremendous load, visualize a bundle of 1½-ton automobiles tied together and supported. The bundle would consist of 167 automobiles.

3. Bits having a cutting diameter of only 4 or 5 in. must sustain a load that sometimes exceeds 20,000 lb. or a load of 1,000 to 1,500 lb. per sq. in. of hole. If bits were simply a rod, such as load would not seem large, but bits are a movable mechanism and much of the load is centered on the cutting edges rather than evenly distributed. Furthermore, the bits revolve 2 to 4 times per second.

These and other severe conditions make the driller vitally dependent on the inherent properties of steels and alloys, as well as upon the proper equipment design and careful operation of the equipment. In short, operations and design of the equipment can never overcome faults that might appear in an inadequate steel, and conversely, no steel is good enough to withstand the loads that a careless operator or designer can put on the metal.

Deep-Well Development

In drilling deep wells the cost of drilling increases rapidly with depth and without the development of the strong steels that are available today the drilling of deep wells would have long ago been abandoned. In fact, the hope of successfully developing very deep oil-bearing properties is vitally dependent on being able to find adequate steels whose cost is not prohibitive. Each succeeding new world's record for depth has been made possible by the development of better steels coupled with sound engineering design and improved methods of conducting drilling operations. Were the development of any of these to falter, no new world's records would be established. Of even greater importance, our supplies of petroleum are dependent upon going to greater and greater depths. Today, we are told that production from depths of 15,000 to 20,000 ft. is not economical just as we were told 15 years ago that production from 6,000 ft. was not feasible.

Stronger Steels

The development of new steels is a gradual process. After laboratory studies, a proposed steel is put into commercial operation and carefully watched for several months or years. Should difficulties develop, the new batches of the steel are heat-treated in different ways in order to overcome the difficulties and finally after years of development, a new steel is added to our list of tried or proven materials. For this reason, steel practice must be summarized over a period of years rather than day by day.

The S.A.E. steels, so labeled because they were first specified by the Society of Automotive Engineers, are being widely used in the petroleum industry. Among these steels, S.A.E. 1025-1045 is most nearly representative of the plain carbon steels that were used almost exclusively 10 years ago—and still are being used widely for many less exacting services. The other steels shown in Table 1 are alloy steels that illustrate those that

(Continued on Page 52)

TABLE 1—STRENGTH AND HARDNESS OF OIL-FIELD STEELS (QUENCHED AND TEMPERED TO AN ELONGATION OF 20 PER CENT)

S.A.E. No.	Kind of steel—	Relative yield strength, carbon steel =100	Relative Brinnell No. carbon steel =100	Relative weight, per cent	Relative cost, in form of bars
1040	Plain carbon	100	100	100	100
T1340	Manganese (1.75)	114	105	88-95	104
2340	Nickel (3.5)	179	150	56-67	156
3140	Nickel (1.5) chromium (0.6)	142	120	70-83	125
3240	Nickel (1.75) chromium (1.0)	167	141	60-71	148
3340	Nickel (3.5) chromium (1.5)	167	138	60-72	236
4140	Chromium (1.0) molybdenum (0.2)	160	125	62.5-80	118
4340	Chromium (0.75) nickel (1.25) molybdenum (0.35)	176	145	57-69	116
4640	Nickel (1.8) Molybdenum (0.25)	154	123	65-81	139
5140	Chromium (1.05)	128	109	78-92	113
6140	Chromium (1.05) vanadium (0.16)	145	118	69-85	143

TABLE 2—EXAMPLES OF MODERN AND OLDER STEELS USED IN DRILLING

Part—	Material or S.A.E. No.—	Yield strength lb./sq. in.	Elongation in 2-in.	Brinell hardness No.	Heat Treatment—
Slush pump rods or rotary shafting	3145 chromium nickel	125,000	17	300	Quenched and tempered
	0.4 carbon steel	73,000	17	205	Quenched and tempered
Slush pump liners	4615 nickel molybdenum	*105,000	*16	+600	Carburized and oil quenched
	Cast iron	45,000 T.S.	..	210	
Chain sidebars	4135 chromium molybdenum	115,000	21	230	Quench 1,600° F.—temper 1,100° F.
	0.35 carbon steel	76,000	21	208	Quenched and tempered
Chain rollers	3140 chromium nickel	140,000	14	360	Quenched and tempered
	0.4 carbon steel	86,000	14	250	Quenched and tempered
Swivel bail bolts	3245 chromium nickel	140,000	18	335	Quenched and tempered
	0.4 carbon steel	80,000	18	225	Quenched and tempered
Rotary gears	4820 nickel molybdenum	103,000	21	+600	Carburized
	Cast carbon steel	30,000	26	...	Normalized
Cathead	Cast Hadfield's manganese	†35,000	50	†200	Soaked and quenched
	Cast carbon steel	30,000	28	...	Normanized
Hoist brake bands	Cast 3140 chromium molybdenum	60,000	20		Normalized and drawn
	Cast iron	25,000	..	230	
Ball bearings	Silicon molybdenum	165,000	12	450	Quenched and tempered
	0.5 carbon steel	92,000	12	260	Quenched and tempered
Bit cutters	4615 nickel molybdenum	*100,000	*23	*270	Carburized
	0.2 carbon steel	*60,000	*22	*180	Carburized
Drill pipe	Manganese molybdenum	95,000	20	210	Normalized and drawn
	Carbon steel	40,000	24	...	

*Body properties (not case). †Work hardens during service to give extreme wear-resisting surface.

Mud Control Is Big Problem on Continental Deep Test

By DONALD B. EDWARDS
Mud Engineer, Continental Oil Co.

TREATMENT of the drilling fluid at Continental Oil Co.'s No. 1 Proctor has been somewhat unusual because practices have been employed which are not commonly used in Mid-Continent drilling. Only one mud change was necessary between the time the 9⅝-in. casing was set at 10,176 ft. and the drilling of the cement plug in the liner which was run to 14,491 ft. Chemical treatment and the use of artificial mud made it possible to maintain a mixture which had low water loss, low initial gel strength, moderate 10-minute gel strength and thin cake-forming qualities, despite the contamination from salt-bearing formations, acid and oil used in attempting to free stuck drill pipe and the drilling of cement.

The conditions existing in the well at various times determined the type of mud necessary and the treatment which was needed to obtain it. A brief description of the drilling of the well and equipment used is given to establish the background for the mud treatment.

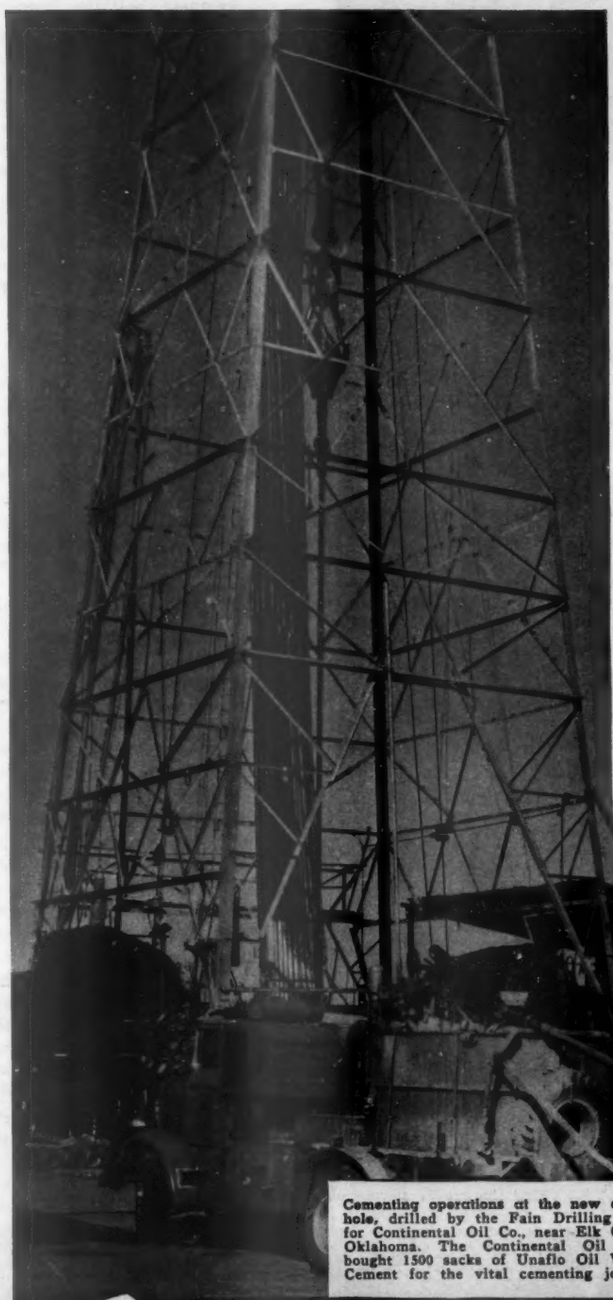
After setting 240 ft. of 20-in. conductor pipe and 1,477 ft. of 13⅜-in. surface pipe, a 12¼-in. hole was drilled to 6,456 ft., where the hole was reduced to 9-in. Upon reaching 10,198 ft. it was decided to ream the reduced hole to 12¼ in. in order to set 9⅝-in. casing. This string was set and cemented at 10,176 ft. While drilling below this casing in an 8¼-in. hole, gas was encountered and while pulling the drill pipe out of the hole from 10,898 ft., the well attempted to blow out. The well was killed but when the density of the mud was raised to 11 lb. per gallon, returns were lost. After reducing the weight and conditioning the mud, drilling was resumed. By exercising great care and control, all went well until a depth of 12,471 ft., when the drill pipe became stuck about 5 ft. off bottom. After 5 days of spotting oil and acid and working the pipe, it came loose. Drilling was resumed after changing the mud to eliminate the oil and acid. Fifty-nine days later the drill pipe stuck again—this time at 14,479 ft. When spotting oil and acid failed to free the pipe, it was backed off, leaving some 2,200 ft. in the hole. This was washed over and cut out down to a part of a joint and the drill collar. This remaining pipe was washed over but would not pull loose. It was then sidetracked and 61 ft. of new hole made. Then 4,779 ft. of 7-in. casing was set as a liner at 14,491 ft. While cementing this liner, circulation stopped and although 3,500 lb. per sq. in. was put up, it was necessary to leave 1,700 ft. of cement inside the liner. In order to cement the top of the liner, a cement retainer was set in the 9⅝-in. casing just above the top of the liner. Then 340 sacks of cement were squeezed down between the liner and casing. An entirely new system of mud circulation was used after all the cement had been drilled. A loss of returns showed that the top of the liner was not shut off, so another retainer was set just above the liner and more cement squeezed until a shutoff was obtained.

The ground equipment for handling the mud was simple but adequate. The two 20-in. power pumps used for circulating the hole had their suctions in one end of the 90 by 20-ft. circulating pit, while the return mud from the shale shaker ran into the other end. In addition to these two electrically driven pumps, there was, beside the 500-bbl. mixing pit, a 14-in. diesel-driven pump which had its own standpipe and hose and which could be used for circulating the hole, although usually it was used for gunning the pits or mixing mud. Any of these pumps could be used for gunning or mixing mud in the circulating pit. Only one electric pump and the diesel pump had suctions in the mixing pit and the reserve pit and consequently could be used for jetting the cellar and shale pit or mixing mud in the mixing pit. Just before setting the liner a 500-bbl. bolted steel tank was set up for mud storage and this was connected into the suction of one of the electrically driven pumps. The manner in which the suctions and discharges of these pumps were manifolded provided a very flexible setup and it was possible to run all three pumps simultaneously, carrying on three separate operations. Thus it was possible to circulate the hole, gun the circulating pit and jet the cellar, all at the same time. Such an arrangement was, of course, quite advantageous. All three pumps were equipped with small liners and pistons after getting below 10,000 ft. and all were capable of putting up as much as 2,500 lb. per sq. in. pressure.

A 15 by 15 by 9-ft. wooden house set beside the mixing pit was used for storage of sacked

Above: Mud-testing equipment by the shale shaker. Right: Chemical barrels and shed

NEWEST DEEP WELL USED UNAFLO



Cementing operations at the new deep hole, drilled by the Fain Drilling Co. for Continental Oil Co., near Elk City, Oklahoma. The Continental Oil Co. bought 1500 sacks of Unaflo Oil Well Cement for the vital cementing jobs.

Well reaches 14,582 ft. following successful cementing operations with Unaflo Oil Well Cement

THE Fain Drilling Co. used 1500 sacks of Unaflo—the easy-flowing, hard-setting cement with a retarded set—to protect this hole for the Continental Oil Company during extremely deep cementing operations.

At 14,040 ft., trouble developed in this deep test hole. A tough fishing job finally brought up all the pipe except a bit and reamer. In order to carry the hole around the bit, the Fain Drilling Co. ran in a whipstock and cemented it with Unaflo Oil Well Cement. A liner was then successfully cemented in place at that great depth—and high temperature—again with Unaflo! And drilling proceeded to the greatest depth in the mid-continent field today.

Unaflo Oil Well Cement has helped to bring in many a well in the mid-continent field. It mixes and places easily with 35% water . . . stays pumpable for over 4 hours at 180° . . . and then hardens thoroughly with high density. It also sets satisfactorily in sulphate water and is not affected by salt water contamination. Use it to protect your next drilling operations.

● Write for "Oil Well Cementing Guide," a new booklet on using Unaflo under mid-continent conditions. Address nearest office. Universal Atlas Cement Co. (United States Steel Corp. Subsidiary), Amicable Bldg., Waco, Texas; Tulsa, Oklahoma City, Kansas City.

OG-U-10

UNAFLO Oil Well Cement

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Mud-testing equipment at geological house at the well

mud. While fishing for the stuck drill pipe, a shed was built on the side of this house, giving a total storage capacity for 5,000 sacks of mud material. A small platform near the shale shaker held the wooden or steel barrels in which the mud-treating chemicals usually came. These were weighed out there before being mixed. Two barrels set just ahead of the shale shaker held the chemicals which were added to the mud as it came from the well.

No artificial mud was used in drilling the hole until a depth of 3,500 ft. was reached, when Aquagel was added to bring the viscosity to 35 seconds. Below 5,000 ft. the viscosity of the mud was kept between 35 and 40 seconds A.P.I. and the density ranged from 9.8 to 10.2 lb. per gal. Returns were lost at 9,250 ft. while relegging the derrick. From that time on trouble was had with losing mud. Because of this, the density was kept as low as possible until after the 9⅝-in. casing was set.

Undoubtedly part of the trouble of losing mud was due to the flocculated condition of the mud caused by the high salt content. A week or so prior to the setting of the 9⅝-in. casing, the salt content of the mud was 6 per cent by weight. This same mud had a water loss of 60 cc. at 100 lb. per sq. in. in 30 minutes through a 7-sq. in. surface. Just before setting the 9⅝-in. casing, a pit of 500 bbl. of 8 per cent Aquagel mud was added to the circulating system. This reduced the salt content to 4 per cent, the water loss to 54 cc., the density to 9.6 lb. per sq. in., and the viscosity to 35 seconds A.P.I. No difficulty was encountered in running 10,176 ft. of casing in the hole full of this type of mud, although returns were lost during cementing before the plug reached bottom.

After Drilling Plug

After drilling the plug in the 9⅝-in. casing the mud was discarded and the entire system was filled with a Baroid Aquagel mud, having a viscosity of 40 seconds A.P.I. and weighing 9 lb. per gal., This mud was quite satisfactory until gas was encountered. When the well started kicking at 10,898 ft. the density of the mud was raised; but when 11 lb. per gal. was reached, returns were lost. The density was then lowered to 10.7 and maintained there until another 3,500 ft. of hole had been drilled and a 7-in. liner had been set. Experience soon taught that, unless the density was kept up as high as 10.6 to 10.8 lb. per gal., trouble was had with gas and that, if the density got any higher than 10.8 or 10.9, returns would be lost. Even with the mud at 10.7 or 10.8 lb. per gal., it was discovered that if anything should happen to upset the balance of the mud column (such as getting a large amount of cavings on the outside of the drill pipe) returns would be lost. Very rigid control of the mud was necessary during the drilling of this part of the hole in order to keep the density of the mud within this narrow range. It was found, too, that loss of returns would result from a severe thickening of the mud caused by such things as drilling cement, oil emulsification or inclusion of acid.

These limitations imposed by conditions within the open hole determined the type of mud which could best be used. Because of losing mud into the formation, a good sealing mud was needed which would release gas easily at the surface. Yet the mud had to retain the other desirable qualities of a good drilling fluid such as having sufficient viscosity to carry out the cuttings and having sufficient gel strength to hold the cuttings in suspension when circulation ceased. The mud used in this well after setting the 9⅝-in. casing had all these properties. Naturally the mud was not kept exactly the same at all times. It would have been impossible to do so and the characteristics were often changed to satisfy the changing conditions in the hole as drilling progressed. The range within which the characteristics of the mud were kept during drilling are shown below:

Viscosity A.P.I.	50 to 65 seconds
Density	10.6 to 10.8 lb. per gal.
Viscosity	45 to 60 centipoises
Gel—initial	1 to 5 g.
Gel—10-minute	40 to 75 g.
pH of mud	7.0 to 8.5
Solids in mud	33.5% to 35.5% by wt.
Salt content	0.3% to 0.4% by wt.

Thirty-minute filtration through 7 sq. in. at 100 lb. per sq. in.:

Filtrate volume	7.8 to 13.5 cc.
Cake thickness	2/32 to 4/32 in.

Mud Control

Most of the actual control of the mud at the well was done by the drilling contractor's crews. One roughneck was designated as "mud man" on each tour and to him fell the job of testing the weight and Marsh funnel viscosity of the mud at regular intervals. When everything was going well, usually this interval was 30 minutes or even an hour; but whenever special attention was needed, the mud was checked every 15 minutes. Another duty of this mud man was to mix and regulate the flow of the chemical solution being used to treat the mud at that time. The particular mixture of chemicals being used was determined by the engineer, and the viscosity to be maintained was designated either by the tool pusher or by the engineer. It was then the duty of the roughneck to keep the viscosity at the desired value by regulating the flow of the chemical solution. If the density of the mud fell below the value designated, the crew's mud man notified his driller who ordered the addition of weighting material.

Other tests on the mud such as Stormer viscosity, gel strengths, pH, and filtration qualities were made daily by the engineer. The proper mixture of chemicals was decided on from these tests. Also from these tests it could be told when colloidal material was needed in the mud.

The mud used in drilling the lower part of this well differed from muds generally used in wells in Oklahoma and the Mid-Continent area in four respects. First, it had a very low water loss. The water loss ranged from 7.8 to 13.5 cc. through 7 sq. in. in 30 minutes at 100-lb. per sq. in. pressure. This would certainly be considered a very good sealing mud. Another feature of this mud was the thin cake which it formed. In no test during drilling did the cake thickness exceed 4/32 or ⅛ in. and usually they were 2/32 or 3/32 in. The extremely low initial gel strength was another feature of this mud. This allowed the easy release of gas from the mud at the surface. Another important result obtained from using a mud with so low an initial gel strength was the dropping of the mud inside the drill pipe whenever the pipe was pulled out of the hole. This meant, of course, that the pipe would come dry, preventing the swabbing of gas into the hole, saving mud, and keeping the derrick floor clean. The fourth unique characteristic of the mud was the moderate 10-minute gel. This meant that the mud developed sufficient gel to hold the cuttings in suspension whenever circulation was stopped. This property is of course quite common. But to have a mud with so low an initial gel strength develop so much gel on standing was unusual. However, the most unusual of all these characteristics was the low initial gel strength. This quality was quite evident to the eye—even the untrained eye. The mud ran like water. Pictures were taken of the mud pit which showed the mud rippling where the mud guns hit. On days when the wind was high, the mud rippled in the suction pit just like the water on top of the reserve pit.

Mud rippling in suction pit showing low gel strength

This low initial gel strength was the most important single factor of the mud control.

The next thing to consider is how such a mud was obtained. This mud was made from native clay, Aquagel and Baroid, and chemicals. The native clay provided body and a base upon which to build. The Aquagel supplied the colloidal material and the Baroid was used to obtain the necessary weight. But the chemical treatment determined the amount of Aquagel which could be used; and it was this, the amount of colloidal material present, that determined the water loss, the cake thickness and the gel properties. By using a strong treatment of chemicals, more colloidal material was incorporated in the mud than could be used ordinarily. In mixing 500 bbl. of new mud to be added to the circulating system, from 110 to 125 sacks of Aquagel were used. This resulted in a thick mud with a viscosity of 80 to 100 seconds A.P.I. But when this new mud was put into the suction pit, it was pumped over the shale shaker and treated with sufficient chemicals to lower the viscosity to 55 or 60 seconds A.P.I. In order to keep the viscosity and gel down, it was necessary to keep a small stream of the chemical solution going into the mud practically all the time. This meant using from 25 to 80 lb. of chemicals each tour while drilling was in progress. Whenever the water loss started increasing, Aquagel was added to the mud and then treated down with chemicals. By means of this procedure a very substantial quantity of colloidal material, in excess of that ordinarily used, was kept in the mud. It was this extra colloidal material plus its extra-high dispersion from the chemical treatment which gave the mud its unusual properties.

Hydrogen Ion Control

The chemicals used for treating the mud were chiefly phosphates, particularly the pyrophosphates, disodium acid pyrophosphate and tetrasodium pyrophosphate. The amount and kind used depended on the condition of the mud and the condition of the well. Since tetrasodium pyrophosphate is alkaline and disodium acid pyrophosphate is acid, they were used to control the pH of the mud as well as for dispersing agents. The other chemicals used were caustic soda, quebracho extract, and sodium hexametaphosphate. These were used mostly for pH control. It was found that the pH of the mud could be raised easily with a solution of sodium hexametaphosphate and caustic soda, whereas the caustic by itself or with other chemicals caused a severe thickening of the mud.

One particularly interesting feature of the mud used in this well was the contamination to which it was subjected. It was contaminated with hydrochloric acid, calcium chloride from hydrochloric acid, topped black oil and cement. Yet, despite all this, the mud was changed only once from the time the 9⅝-in. casing was set until after the cement plug had been drilled out of the liner. During this time oil and acid were spotted in the hole twice, the hole was plugged back with cement twice, and 1,700 ft. of cement drilled out of liner.

By using a large quantity of chemicals when the oil appeared in the mud, the emulsion was broken and a large part of the mud was saved. Whenever the hydrochloric acid and calcium chloride from that acid got into the mud, alkaline chemicals were used. In one instance a mixture of 50 lb. of sodium hexametaphosphate and 2 lb. of caustic soda was used to make a barrel of solution. This mixture soon raised the pH sufficiently so that tetrasodium pyrophosphate could be used to get the mud back into good shape. At its worst from acid contamination the mud tested as shown below:

Viscosity A.P.I.	51 seconds
Density	10.7 lb. per gal.
Viscosity	41 centipoises
Gel—Initial	25 g.
Gel—10-minute	75 g.
pH	6.3
30-minute filtration through 7 sq. in. at 100 lb. per sq. in.:	
Filtrate volume	12.7 cc.
Cake thickness	3/32 in.

Chemicals with an acid reaction, such as quebracho extract, disodium acid pyrophosphate, and sodium hexametaphosphate, were used whenever the mud was thickened by cement contamination. The quebracho extract was first used when the 1,700 ft. of cement had to be drilled out of the 7-in. liner and it seemed to be very effective. The two other times when cement-contaminated mud was chemically treated, just the two acid phosphates were used, but it was possible to keep the mud in a usable condition with them. On one occasion the pH of the mud was 11.8 just after drilling a cement plug. A few days later the pH had come down some and the results of a test made at that time are shown in Table 1. Yet by substituting 500 bbl. of new mud in the 2,000-bbl. system and treating for 4 days, the condition of the mud was improved greatly as shown in Table 1.

TABLE 1

	Cement-cut mud	Same mud after addition of 500 bbl. new mud and chemicals treatment
Viscosity A.P.I., seconds	56	69
Density, lb. per gal.	10.7	10.8
Viscosity, centipoises	38	56
Gel—Initial, grams	1	1
Gel—10-minute, grams	175	70
pH	10.0	8.0
30-minute filtration through 7 sq. in. at 100 lb. per sq. in.:		
Volume filtrate, cc.	16.0	12.0
Cake thickness, inches	5/32	4/32

Thus it will be seen that by using relatively large quantities of chemicals it was possible to continue using mud that otherwise would have been thrown away. Since the cost of the chemicals used wasn't one-tenth of that of the mud, quite a substantial saving was had due to the use of the chemicals.

They Picked LINK-BELT
Mud Screen for this deep drilling project
● Fain Drilling Co.'s Proctor, Okla., test, projected as Oklahoma's deepest hole, is now bottomed at 14,582 ft. Among the equipment selected to successfully fulfill the contract is a Link-Belt vibrating screen, specified for the mud reconditioning job. Contractors everywhere know, from long experience, that Link-Belt screens offer the most efficient, dependable and economical method of reconditioning rotary mud. That's why you'll find Link-Belt screens on a majority of today's drilling jobs. Made in two sizes—24' x 48' and 48" x 60" screening areas. Full details furnished upon request.
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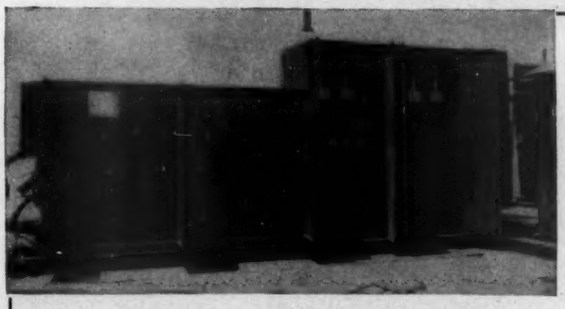

We install and service AC and DC Rotary and Cable Tool Drilling Rigs, Electric Pumping Equipment and do pole line construction.

Control unit for all main and auxiliary drives on deepest well in world drilled with diesel-electric power.

We are pleased to have contributed to the design and installation of the electrical equipment used on the Continental Oil Co. Proctor No. 1 for Fain Drilling Co.

I. W. HYND

Oil Field Electrical Engineering and Construction

P. O. Box 1207 Phone 299 Seminole, Okla.

Electric Rig for Deep Drilling

(Continued from Page 33)

the lifting strain is transmitted to a pair of cable-tool drilling clamps anchored to a sill beneath the floor by turnbuckles. To place the standby hoist in operation it is only necessary to turn the rotary table around, attach the drive chain and remove the cable-tool drilling clamps.

All of the diesel engines used on the rigs are adequately muffled to reduce the noise. Transmission lines to the motors are encased in a special weatherproof steel conduit which has a removable top. Proper safety switches prevent any damage to electric motors, generators or diesel engines. Safety switches on the hoist allow the driller to disconnect the current from the hoist motor instantly in case there is any emergency. In addition a special limit switch, controlled by a sleeve located on the dead line about 15 ft. under the crown block, automatically disconnects the current to the hoist motor. It is impossible for the traveling block to hit the crown block with the power on. Damages due to coasting into the crown block would be slight.

Derrick equipment consists of a double 4-in. standpipe and with two mud hoses to prevent any delay in case of leaks aboveground in the circulating system. The Emsco crown block, traveling block, hook and swivel each have a rating of 300 tons, thus provide an adequate margin of safety Extra long 4½-in. T.I.W. pipe slips are used when coming off bottom but their necessary weight has been reduced by the use of a liner in the bowl of the rotary table. In all, three sizes of slips are used in making a single trip, lighter slips replacing long ones when sufficient weight has been removed and smaller slips being required for the 3½-in. drill pipe used on bottom of the drill stem. A complete set of jaws for the Byron Jackson tongs including 3½-in., 4½-in., and 6⅝-in. was kept with the rig.

The test was started with a 1⅛-in. preformed Broderick-Bascom line, but the size was increased

Water well and pump for supplying drilling needs

before running the 9⅝-in. casing to a 1¼-in. preformed line. Three lines of each size were used in drilling the test. Size of the sheaves in the crown block was increased to 48 in. when the size of the line was increased. Length of line service has been increased by buying a line larger than necessary and then occasionally pulling over part of the line and cutting off the end; this moves new sections of line into positions of most wear.

Variety of Drill-Pipe Sizes

Drill pipe used on the test has varied at different times due to many sizes of hole drilled. At the deepest point, the drill stem consisted of 4,900 ft. of 3½-in., 15.50-lb.-per-ft. Youngstown pipe with Hydril, internal-flush tool joints, and about 9,600 ft. of 16.60-lb.per-ft. 4½-in. external-upset Youngstown pipe equipped with Hughes full-hole tool joints; the drill pipe is equipped with H. C. Smith and Patterson-Ballagh rubber protectors to prevent damage to the casing and tool joints.

Water for the circulating fluid, cooling systems on the motors, and all drilling purposes, is obtained from a 470-ft. water well drilled while the other equipment was being rigged up. It is equipped with a 5-in. Pomona pump having a capacity of 225 gal. per minute operating against a 380-ft. head. It is driven by a 25-hp. Continental gasoline engine. A 1,600-bbl. wooden tank and a 500-bbl. steel tank provide adequate storage and in addition there is a steel circulating tank for the engines. A 4,600-gal. cylindrical tank is used for fuel storage for the regular generating engines while fuel for the standby pump and hoist is stored in a 1,000-gal. tank.

Precautionary Measures

Every precaution has been taken to prevent damage to the equipment, possible blowouts or injury to the men. The blowout preventer may be operated with mud, water, or air pressure and valves for its control are located on the floor. Mud lost while coming out of the hole is drained into a special catch basin built around the control head. The basin empties into a line which returns the mud to the pit, or in case the floor has been washed, the water may be drained from the basin into the cellar.

In addition to the regular derrick substructure, the main sills under the rotary table are braced with frames made from 6⅝-in. drill pipe which rest on the concrete platform and are further supported by heavy sills extending to the bottom of the cellar. An extra rathole in front of the rotary table is used for making rathole connections which helps in preventing the sticking of the drill pipe in horizons where circulation is necessary to maintain the walls of the hole.

Two weight indicators, a Martin-Decker and a Line Scale, are attached to the drilling line and the possibility of the driller applying too much weight or pulling excessively on the drill pipe because of inability to judge the weight, is thus eliminated.

Guard rails around the floor and hand rails on the steps prevent workmen from falling; special safety ladders are provided for gaining access to the top of tanks, all lights on the floor are gasproof and in addition floodlights are provided for illumination of the pits and areas around the rig. The drilling site is located in sandy soil and all vegetation immediately surrounding the derrick has been removed and the ground is raked daily. All equipment not necessary on the derrick floor is stored on platforms away from the derrick while special pipe racks take care of tubular material not in use.

Drilling of Test

The supervisors of the test were aware from the start that they would have to go at least 10,000 ft. to reach their objective and probably much deeper; as reductions in the size of the hole would no doubt be necessary, large upper strings of pipe would be required.

Drilling was started on August 3, 1938, with a 12¼-in. bit and after reaching 250 ft. the hole was reamed to 17¾ in. and then reamed again to 24 in. Two hundred and fifty feet of 20-in. pipe was

Left upper: Standby pump used to mix drilling fluid. Left lower: Discharge manifold on regular mud pumps. Right upper: Suction manifold on pumps permitted ready transfer of fluid. Right lower: Vibrating screen and barrels used for treating mud

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Continental Oil Company's Proctor No. 1. Elk City, Oklahoma

The satisfaction of completing a good job extends to every individual in any way engaged in the work. Our congratulations to Continental, and to Fain Drilling Company and its crews on the successful completion of Proctor No. 1 ..... We too are pleased with our part in this accomplishment. Grizzly Full-Moulded Brake Blocks provided the essential factor of safety for handling the drilling string; Grizzly Giant Drill Pipe Protectors provided ample protection for casing and drill pipe; the Grizzly No-Wip Line Saver protected the wire line, simplified spooling, eliminated line troubles ..... Grizzly products always pay dividends in one form or another — through greater safety; faster drilling; longer service; lower costs; savings in time, labor and money. Ask your supply dealer.

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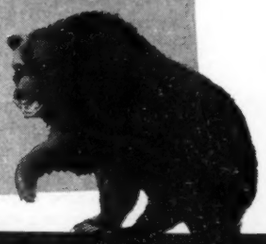
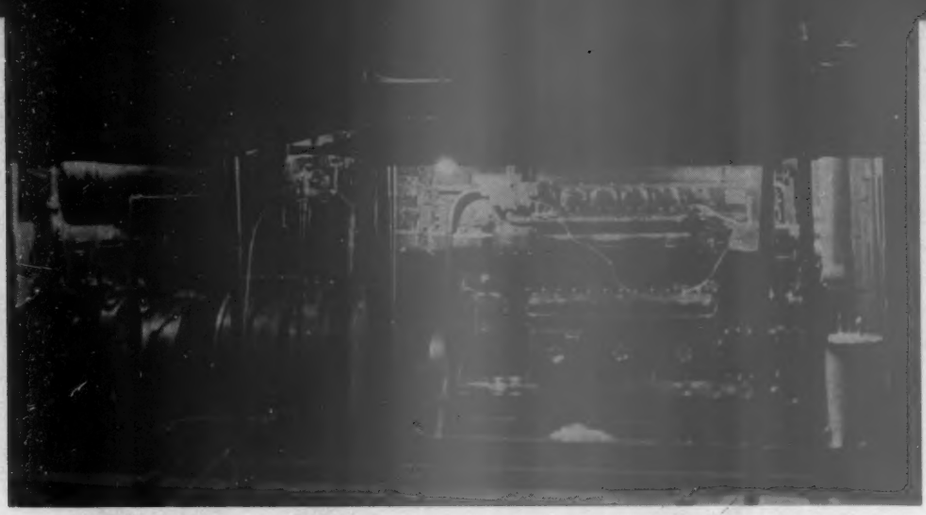




Night view of 300-hp. diesel engine driving a 140-kw. and a 50-kw. generator and 25-kw. exciter

then run and cemented with 300 sacks of Uniflo cement. Drilling was resumed on August 8 with 12¼-in. bit and after reaching 1,500 ft. the hole was reamed to 17½ in. Fifty joints of 13⅜-in. casing was then run to 1,477 ft. and cemented with 1,190 sacks of Uniflo cement.

On August 17 drilling of the 12¼-in. hole was started and this time it was carried to 6,456 ft. and at that point it was reduced to 9 in., the 6⅝-in. drill pipe being replaced with 4½-in. drill pipe. This size hole was carried to 10,196 ft. Considerable mud was lost at 9,000 ft. and the drill pipe stuck at 9,228 ft., but was freed after a few days. The sticking occurred while the derrick was being relegged and the pipe hanging on the rotary table. Some trouble had been experienced previously and the derrick was being reinforced in case of further trouble.

On reaching 10,196 ft. it was seen that the hole would have to be carried to a depth beyond that anticipated and it was decided to run a casing string to protect the upper hole. The 9-in. hole was reamed 12¼ in. to bottom with the mud being conditioned for running of the casing. Drilling was stopped for a short time to allow for a new and stronger derrick to be built. The new structure was a 136-ft. Lee C. Moore derrick with a 30-ft. base and capable of a load of 800,000 lb. A.P.I. capacity. It was built on an 8-ft., 1,000,000-lb. test substructure.

Two Blowout Preventers

The test originally had two Shaffer blowout preventers and a Hughes gate valve on the 13⅜-in. casing and these were changed to a Rectorhead and a Shaffer blowout preventer for running pipe.

After laying down the drill pipe on February 26, 1939, a new 1¼-in. drilling line was installed and the 9⅝-in. casing was immediately started in the hole after changing blowout preventers. To withstand the enormous pressure at the bottom of the hole, 58-lb.-per-ft. pipe was used for the first 3,000 ft. run in the hole, the next 1,000 ft. was 47-lb. pipe and the remainder was 43-lb. pipe. Total weights of these various sections were 170,926 lb., 46,436 lb., and 271,266 lb., respectively. Total weight of string was 488,628 lb. As the external size of pipe remains the same regardless of weight and any heavying is done by addition of metal to the inside, one joint of the heaviest pipe is generally run on top of the hole to prevent the running in of a tool that is too large to pass through the smaller opening near bottom.

The casing used was Spang Chalfant extreme line seamless casing and the running of this near-record string required only 12 hours with an additional 2 hours required for the placing of cement and pumping the plug to its final position. The casing was cemented in the well with 1,500 sacks of Uniflo cement, factory mixed with 3 per cent Aquagel. Circulation was lost while cementing. The 488,628-lb. casing string was suspended from a 13⅜ by 9⅝-in. Type AH, 6,000-lb. test, Series 900 A.P.I. Rectorhead, the split-ring feature of which affords a safe suspension without danger of distortion to the threads or collapsing of the pipe as the loading is directed vertically.

After cementing the casing, several days were used in running electrical-logging instruments to locate the height of the cement behind the pipe and obtaining other information. To prevent blowouts while drilling, the cellar connections on the 9⅝-in. pipe included Shaffer and Cameron blowout preventors; a Hughes gate valve permitted closing of the well when the drill pipe was out of the hole. These were flanged to the top of the Rectorhead and braced with turnbuckles; the cellar-connection assembly weighed 13,787 lb. On March 6, 1939, the crews began picking up drill pipe and reaming to bottom with an 8¼-in. bit.

Evidence that there was some gas in the area was obtained shortly after the long string of casing was run in the well, the mud showing signs of cutting when the drill pipe was partially out of the hole during a trip being made at 10,898 ft. Mud weighing 10.2 lb. per gal. was being used at the time and it was immediately heavied to 10.5 lb. per gal. and the trouble eliminated.

Above: Auxiliary unit which drives 50-kw. generator.

Below: Rectorhead for supporting heavy casing string

At 12,740 ft. the pipe became stuck while drilling in shale and required 4 days to dislodge it. Working of the pipe was of no avail so 150 bbl. of oil was run in the hole and when it failed to produce results, 1,000 gal. of acid was spotted around the bit. This was followed by 30 bbl. of oil, then 2,000 gal. of acid and finally 176 bbl. of oil with a special wedding agent compounded at the Ponca City refinery, was placed in the well. After pulling 55,000 lb. on the pipe, the bit came free.

On August 8, a total depth of 13,845 ft. was reached and a shale break began allowing the drillers to make more footage per tour, about 100 ft. daily. However the tendency of the drill pipe to stick became more prevalent and it became evident that some provision would have to be made to protect the open hole. Drilling was continued while a suitable liner was being designed but the drill pipe became stuck at a total depth of 14,479 ft. on August 12, 1939.

Freeing Drill Pipe

Despite a pull of 30,000 lb. more than the weight of the drill pipe, the stuck stem refused to come loose and attempts at working the pipe and rotating it likewise failed. Attempts to free the pipe by acidization with 2,000 gal. of acid and the spotting of 150 bbl. of oil were ineffectual and cavings collecting around drill collar blocked circulation which could not be regained with pump pressure as high as 6,000 lb. per sq. in. Washing over and cutting out of the drill pipe was then started.

The drill pipe was backed off at a depth of 12,268 ft., leaving 2,211 ft. of 3½-in. pipe in the hole. A wash-over string of 493 ft. of 26-lb., 7-in., Spang Chalfant extreme-line casing was used. The procedure was to wash over the fish from 20 to 100 ft. beyond the point where the cut was to be made and then run the cutting tool.

The cutting-out job was under the supervision of Charles B. Carothers of the Baash-Ross Tool Co. because of his familiarity with the tool used and his experience in cutting out the type of pipe stuck in the hole, pipe with bottle-shaped tool joints. This pipe requires a slip-type external cutter. Six cuts were made, the amount recovered by each cut, depth of cut and number of joints is as follows:

EACH CUTTING OPERATION

Date—	Feet	Joints	Depth (feet)
August 23	452	15	12,676
August 25	335	11	13,011
August 27	391	13	13,402
August 29	420	14	13,822
September 1	422	14	14,244
September 5	122	4	14,366

After making the last cut, approximately 68 ft. of fish, consisting of 28 ft. of drill pipe, 8 ft. of reamer, 30 ft. of 6-in. o.d. drill collar and a bit, remained in the hole. Several attempts were made to recover this fish with different type over-shots and rotary jars but to no avail. A detailed description of the cutting job was published in The Oil and Gas Journal, September 28, 1939, Page 34

A 200-ft. cement plug was placed on top of the fish and sidetracking started; on the second attempt, the drill stem passed the fish and on September 9, drillers had suceeded in making 6 ft. of hole beyond the fish. This new hole was conditioned and the pipe used for a wash-over string was run up and down it repeatedly to make sure the liner could be put in place. For a liner, 4,779 ft. of 28-lb. per ft., 7-in. o.d. Spang Chalfant, extreme-line casing was run on the 4½-in. drill pipe with a safety joint. It was landed at 14,491

ft. and cemented with 282 sacks of Uniflo cement containing 4 per cent Aquagel. When pressure reached 3,500 lb., cementing was stopped, leaving 1,715 ft. of cement in the liner. An attempt to seal off the top of the liner at 9,712 ft. by placing cement around it was not successful, the cement escaping into the formation.

After drilling the cement out of the liner, drilling below it was started but trouble occurred with repeated sticking of the bit. Attempts to make the caving shale stay in place by increasing the mud weight were unsuccessful due to the loss of mud in the formation. After testing, it was determined that a major point of circulation loss was around the top of the liner at 9,712 ft. This was eliminated by squeeze-cementing in stages with 655 sacks of Uniflo cement in 11 batches through a Baker Type K cement retainer. Details of this operation were reported in The Oil and Gas Journal, November 23, 1939, Page 38.

Drilling was again resumed and the total depth of 14,542 ft. reached although the shale continued to cave badly and approached heaving shale stage with cuttings backing up into the liner.

After making 42 ft. more and reaching a total depth of 14,582 ft. the drill pipe became stuck 25 ft. off bottom when an attempt was made to get the bit in the clear after losing circulation. The drill collar and reamer had been laid down previous to this so the entire string could be washed over in case it became stuck. A safety joint had also been installed 265 ft. up from the bit.

At the first attempt to back off, 3,200 ft. of 4½-in. drill pipe was recovered and on the second attempt all but 366 ft. of the drill pipe in the hole was brought out. An attempt to wash over the pipe remaining in the hole was delayed by the safety joint being slightly larger than the drill pipe, thus preventing the wash-over string from having the proper clearance. This was milled down and the pipe washed over and backing-off operations resumed.

An Edwards Reversing Tool

Attempts were made to back off the fish with an Edwards reversing tool furnished by the Houston Engineers, Inc. This tool was used with two joints of left-hand pipe and an overshot or tapered tap below it. It is run in the hole on right-hand drill pipe, locked in the liner or casing at the proper time. The drill string above it rotated in a right-hand direction and, through a gear in the tool, the lower part of the pipe is rotated in a left-hand direction. It is thus possible to take hold with an overshot or tapered tap and back off part of a fish without resorting to a complete string of left-hand pipe. First try at backing off resulted in the recovery of one joint of 3½-in. drill pipe and a second attempt resulted in the recovery of three joints of drill pipe and the safety joint. The fish was washed over with a 5-in. string to near the bottom of the liner; on coming out of the hole it was found that a short section of the wash-over string had been left in the hole. Another attempt with the Edwards reversing tool resulted in a recovery of five more joints of drill pipe. On the next run there was no recovery but one joint was recovered the next time backing off was tried.

The 4 ft. of 5-in. wash pipe previously left in the hole was recovered with an Acme spear. An effort to recover the two points of fish in the hole by use of a left-hand tapered tap resulted in catching the fish but it refused to move.

The reversing tool was backed off at the safety joint provided in its construction and the drill pipe pulled, leaving two joints of drill pipe in the hole on top of the fish. This was recovered by running in a complete right-hand string of pipe, catching the left-hand pipe, and by right-hand rotation, backing it off of the fish. The operators then decided not to attempt to drill the well deeper but to start plugging back.

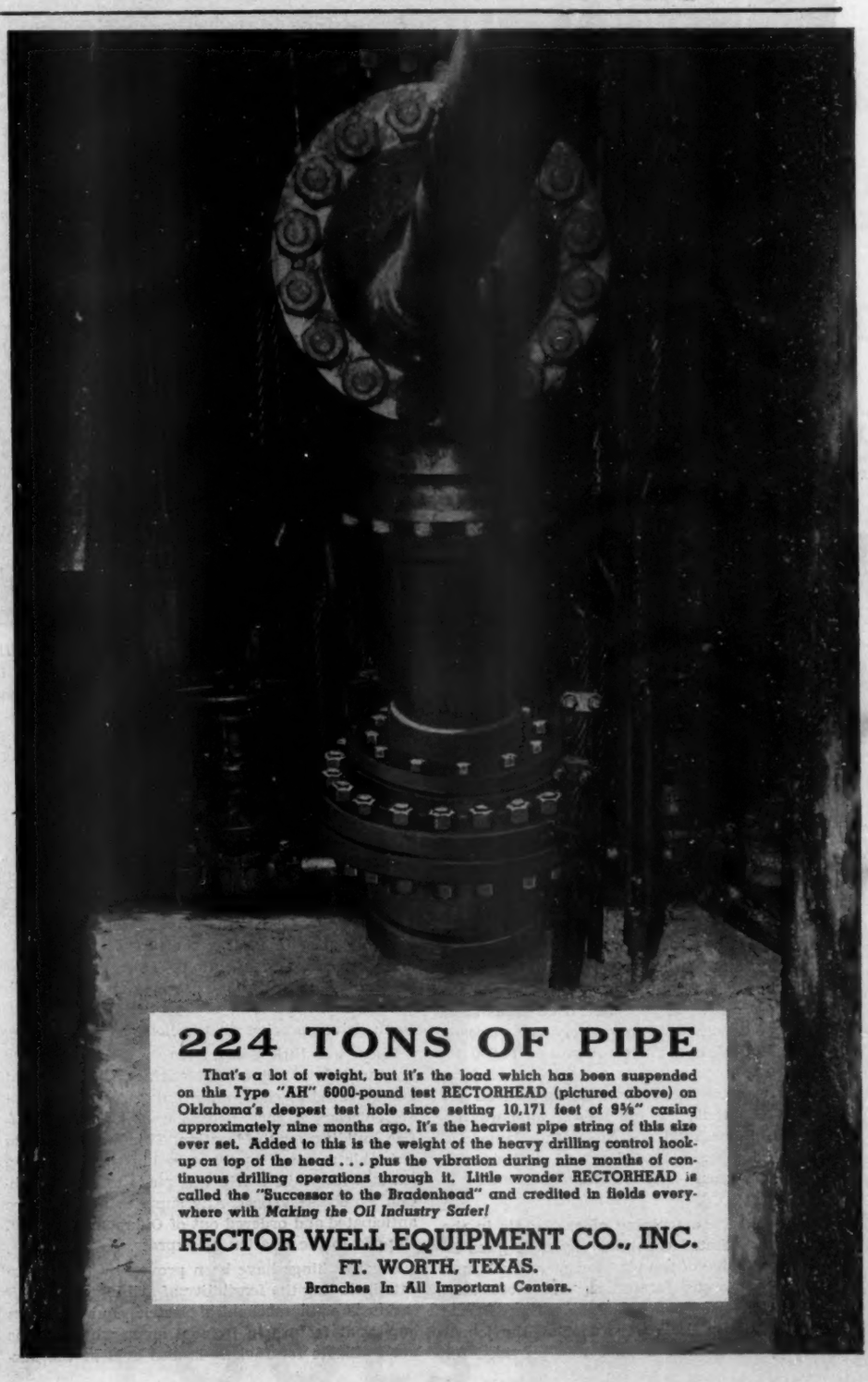
A block plug was run at 13,580 ft. and the liner perforated with a gun perforator. Three hundred and fifty sacks were then squeezed behind the liner above the point reached by the cement pumped in when the liner was first run. The well will be tested in several zones, some of which showed considerable gas content.

Progress Never Rapid

The formations encountered on the test, while they were all comparatively young geologically, were not easy drilling and with the exception of the first few thousand feet, the progress was never rapid. No trouble was experienced in keeping the hole straight. The maximum deviation from vertical in the first 10,000 ft. of drilling was 2½°; from 10,000 to 13,000 ft. the maximum deviation was 1¾°; below 13,000 ft. maximum deviation was 1½°.

Above 10,000 ft., from 7 to 8 points weight (approximately 20,000 lb.) was used and the speed of rotation was seldom over 80 r.p.m. After passing 10,000 ft., the rotative speed and the weight was reduced to about 60 r.p.m. and to 3-5 points, respectively. Pump pressure ranged from 850 to 1,000 lb. during normal drilling and as high as 1,500 lb. during unusual cases.

Thirty-three 12¼-in. rock bits were used to drill the 4,979 ft. of hole from 1,477 to 6,456 ft., an average of a little over 150 ft. per bit. After reducing the hole to 9-in., 56 rock bits were used to drill the next 3,750 ft. for an average of a little less than 67 ft. per bit; that the formations were comparatively hard is shown by the low average of 85 ft. per bit while the hole was being reamed with the forty-four 12¼-in. pilot bits. After setting casing and to a depth of 13,845 ft., a distance of 3,649 ft., 73 rock bits of the 8¼-in. size were used for an average of slightly less than 50 ft.


224 TONS OF PIPE
That's a lot of weight, but it's the load which has been suspended on this Type "AH" 6000-pound test RECTORHEAD (pictured above) on Oklahoma's deepest test hole since setting 10,171 feet of 9⅝" casing approximately nine months ago. It's the heaviest pipe string of this size ever set. Added to this is the weight of the heavy drilling control hook-up on top of the head . . . plus the vibration during nine months of continuous drilling operations through it. Little wonder RECTORHEAD is called the "Successor to the Bradenhead" and credited in fields everywhere with Making the Oil Industry Safer!
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Safety equipment which helped prevent accidents on the Continental Oil Co.'s No. 1 Proctor is shown above. (1) Rathole cover; blowout-preventer controls shown in background. (2) Safety switches which instantly stop the electric motors in case of emergency. (3) Safety light for illumination of pits and vibrating screen; all of the lights and electrical equipment on the derrick floor were gas proof. (4) Adequate pipe racks provided for tubular material when it was not in use. (5) Safety ladder which hooks over the tank top

per bit. The next five rock bits made 502 ft., an average of over 100 ft. per bit. It was at this point the pipe first stuck and bits were not used a great deal for straight drilling after that. Two hundred and twenty-two bits were used in the drilling of the well.

One of the major problems encountered on the job was the maintenance of the mud. The problem is involved as the factors that are beneficial in one respect may be detrimental in the other. High temperatures, reported as 190° F. at 13,000 ft. added to the difficulties in mud treatment and cementing. To prevent blowouts from a gas sand, a heavy mud with a comparatively low viscosity was desired. With a fluid column of 14,000 ft., the hydrostatic pressure was sufficient to force the mud into any porous formation and an impairment of circulation and loss of mud was experienced. Light mud increased the danger of sticking the pipe. A special article dealing with the mud treatment may be found elsewhere in this issue.

To prevent the entraining of gas or air in the mud, it was agitated constantly by mud guns located on each side of the pit. However, much mud was lost in porous formations and more than seven carloads of additives, including Baroid Aquagel, and chemicals were used on the job. A separate pit and later a tank was provided for the mixing of the new mud before it was introduced into the circulating fluid.

Little Mechanical Trouble

Any trouble that caused a number of trips, or extensive coring at depths beyond 10,000 ft., meant a delay because of the time required to make a trip. With the 10 lines strung, 9 hours are consumed in pulling the pipe from the hole and returning it to bottom. Time required for making the trips was increased at about 13,000 ft. by the replacement of a 19-tooth sprocket by 21-tooth drive sprocket on the hoist.

There was little delay from mechanical trouble on the test as all of the engines are inspected and repaired at each opportunity. A complete set of replacement parts needed were kept in the office building on the location. This stock of parts resemble a small supply store but there were no shutdowns, while a trip was made to town to obtain a necessary part. Any supplies needed were anticipated and ordered out of Oklahoma City and shipped to the location by express.

Several things have been proven by the test to date including the feasibility of drilling deep wildcat tests with mechanical-electric equipment, an important feature in isolated areas where gas is not available for fuel. It is also evident the hazards of drilling and the costs increase rapidly with greater depths, and the surface machinery to handle the drill pipe and fluid for depths up to 15,000 ft. will not have to be enlarged greatly beyond its present size to make this type drilling a routine matter. By far the greatest problem is the prevention of formation caves and the sticking of the drill stem. Geologically it is evident that in some of the basin areas the sedimentary formations are of extreme thickness and the costs may be enormous for gathering enough information to establish control for scientific prospecting methods.

The Continental Oil Co. did not release publicly any of its geological information obtained from the test until it was decided to plug back, although it provided companies interested in the area with samples to within 1,000 ft. of bottom while drilling was in progress. Geology of the well is discussed in another article appearing in this issue.

If a producing well had been obtained, the drilling of the second test would not require as much time as the 15 months consumed in drilling the No. 1 Proctor, Continental officials believe. About 4 months could be saved due to experience already gained although in the development of a field at such depths, some tests would have to be abandoned because of difficulties encountered.

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They soon become "trusties" and never attempt to "break."—"Good behavior" only adds to their term of hard labor which they "serve" with no complaints.

Any supply store will gladly act as a "posse" to "bring 'em in" so that you can be the judge and sentence any BJ TOOLS you like to hard labor for life.

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HERE ARE THE FAIN DRILLING COMPANY CREWS WHO DRILLED THE CONTINENTAL OIL CO'S. PROCTOR NO. 1.

BJ Tools played their part in handling the long, heavy strings in Continental Oil Company's Proctor No. 1. Crews do not worry when there is a BJ "300-ton" Triplex Hook on the job, with BJ Weldless Links and a BJ Elevator.

A round trip costs plenty when bottom is more than 14,000 feet down. BJ Tongs never have held up fast-moving crews when going in or coming out. Have you seen the BJ Extra Heavy Rotary and Casing Tongs?—they are strong enough for breaking out drill collars and reamer subs—fast enough for casing service.

No, these men are not criminals, although it really is "hard labor" to drill 14,582-foot wells in Oklahoma. BJ Tools are mighty proud to have been with crews like these.

BJ DRILLING TOOLS

Metals in Deep-Well Drilling

(Continued from Page 37)

are now used widely in the industry. The table indicates forcefully the greater strength and the decrease in weight that is possible with these special steels. Many comparisons similar to Table 1 can be made, but the particular basis of 20 per cent elongation was selected because such an elongation is about the lowest that most fabricators like to handle in large-scale commercial manufacturing operations. Although most of these steels are not used for drill pipe, a comparison of the length of drill pipe that could be carried without exceeding a given maximum load is indicated directly by the column entitled Relative Yield Strength. Thus an S.A.E. 2340 drill string that was 9,000 ft. long would weight no more than a 5,000-ft. string of plain carbon steel. The more highly alloyed steels shown in Table 1 are not used today for drill pipe or casing because of the high capital investment but the Spang Chalfant casing used in No. 1 Proctor consisted of 10,171 ft. of manganese steel (1.25 per cent) and more than 4,770 ft. of manganese (1.25 per cent) molybdenum (0.15 per cent) steel. These steels are stronger than ordinary carbon steel by about 40 per cent and 100 per cent respectively.

In early periods of oil exploitation, the plain carbon steels were used, and in many instances the equipment was made in field shops near the oil fields. Simple heat-treating furnaces were employed and temperatures were estimated by the experienced eye of the blacksmith. Today elaborate heat-treating furnaces are maintained and temperatures are regulated and controlled by automotive instruments. Much oil-field equipment is so large that complete heat treatment is prohibitive in cost and hence some pieces are heat treated at only those parts that must bear extreme loads. An example of this is the heat treatment of the ends of drill collars and kellys, or the differential hardening of certain areas of rock bits which must act as bearing contacts.

Economic studies can be made from data such as those given in Table 1, to select the most economical steels but such a selection would probably not be altogether dependable. Each alloy steel has definite characteristics and properties which cannot be measured adequately by the two factors of hardness and yield strength that are shown in Table 1. Certain steels have depth-hardening characteristics, others are particularly suited to carburizing or hardening operations and finally, the element of quantity production or ease in obtaining shipments of certain steels, becomes an important factor. On a plain economic basis, most of the steels in Table 1 are found to be cheaper than carbon steels—i.e., you can get more strength and hardness in a dollar's worth of alloy steel than in a dollar's worth of carbon steel. In addition to this, the advantages of decreased weight, freedom from breaks or fishing jobs, and greater speed of drilling are of signal value in deep-well drilling—and are factors which are known to be worth many dollars but which cannot be evaluated with accuracy.

Steels Now Employed in Drilling

In drilling a deep well such as No. 1 Proctor, the contractors and equipment companies are loath to experiment with special new steels. First of all, the equipment which is already in use is built to sustain even larger loads than are expected, and hence they can in many instances be used in drilling even extreme-depth wells without modification. Secondly, new developments always involve some misjudgment or unearth difficulties which have not been foreseen, and for these reasons, the regular standard and tried equipment is the best. Should production from depths of 15,000 ft. become a regular practice, then the equipment manufacturers would gradually introduce better steels and over a period of several years, the development of these raw materials would become standard practice. For these reasons an investigation into the materials used in drilling No. 1 Proctor did not disclose many usages that were not already known. For example, one manufacturer wrote: "In designing the equipment on this deep test, we made no more provision for especially severe conditions than we would make on any rotary-drilling-rig equipment of this type, and we would not have done so even if we had known at the time that a depth in the neighborhood of 15,000 ft. was contemplated."

The above statement emphasizes the special attention metallurgy is being given in the production of standard pieces of oil-field equipment and this is further exemplified in the fact that the legs of the derrick were constructed of A.S.T.M. A-94-29 structural steel which contains about 0.2 per cent silicon, such steel having a yield strength of about 50,000 lb. per sq. in. as compared with 35,000 lb. per sq. in. for plain carbon structural steel.

The steels shown in Table 2 were assembled for the purpose of illustrating the general types of steels that are being used today for the most severe conditions. In addition to high-strength steels, plain carbon steels or older recommendations are also included so that some idea of the improvement in metallic materials may be gained. From this standpoint of strength alone, it may be said that present-day steels range from 50 to even 250 per cent stronger than the materials used in early drilling practice—however, such a basis of comparison is not emphatic enough because the value of greater hardness, wear-resistance, freedom from failures and increased speeds of drilling are factors which make it impossible to evaluate the real advantages of the newer steels.

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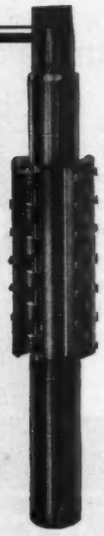

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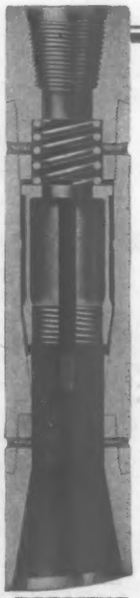
These two H-E Tools, recognized the world over for fishing success, have just added another record to an already long list of remarkable trouble-solving jobs . . . this time the recovery of more than 300 feet of 3½" internal flush drill pipe in only 12 hours fishing time from 14,582 feet. It's the world's deepest fishing job, and it's record speed from a comparative depth standpoint.

Complete mechanical details of these and other H-E specialized tools is yours for the asking . . . and the story of our specialized Reversing Tool Service will convince you of the money-saving and trouble-saving that's yours through depending on these tools and this service when in trouble.



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Geology Prompted Drilling of Deep Test

IN an area of closure on a geophysical (seismograph) structural trend paralleling the Wichita Mountains of southwestern Oklahoma, Continental Oil Co. located No. 1 Proctor as a wildcat test. This well has contributed important information from a geological standpoint to knowledge regarding the thickness and lithology of the Pennsylvanian series of the Anadarko basin.

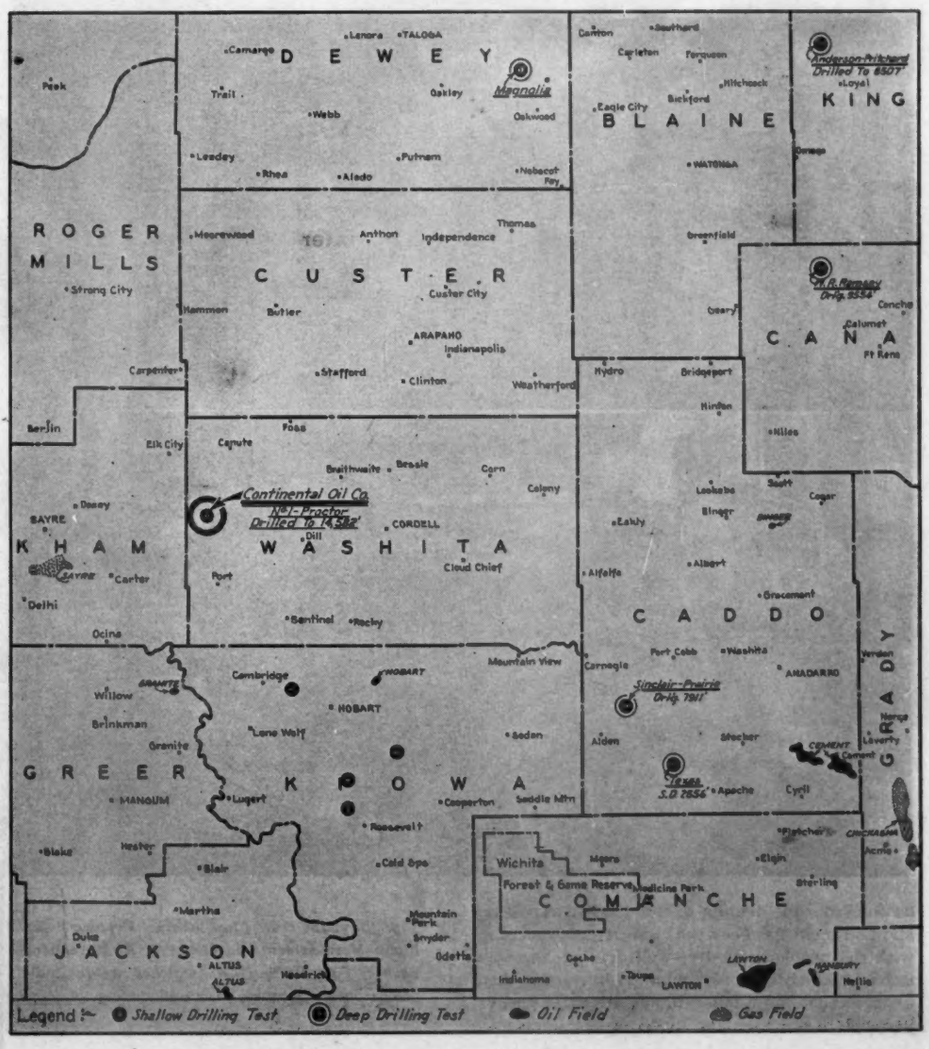
All previous estimates have been exceeded by the actual thickness of the Pennsylvanian series discovered in the drilling of this test which penetrated approximately 9,450 ft. of these formations. This is a surprising amount, when consideration is given to the fact that pre-Cambrian granite outcrops only 23 miles south of the well.

Subdivisions of formations which were encountered are shown on the accompanying table. The lithology of the Pennsylvanian series has been found to resemble Texas Panhandle sections instead of the Oklahoma section as it is developed in the Cement field to the eastward. The section at Cement is predominantly sandstone and shale, while the section in the Proctor well is predominantly limestone and granite wash. One of the impressive features of the Proctor section is the more or less continuous occurrence of arkose from the top of the Cisco to the lower part of the Strawn group. This demonstrates that the Wichita Mountains were repeatedly furnishing a part of the sediments throughout Pennsylvanian time.

Several shows of gas were noted between 10,700 and 13,400 ft., in thin sandy limestones and conglomerates, the porosity of which was relatively low (indicated by a Schlumberger electrical survey). The value of the gas shows is not known at present. The gas pressure nearly caused the mud to be blown from the hole several times. It is planned to test all shows thoroughly before completing the well.

STRATIGRAPHY

Series	Group or formation	Depth (feet) From	Depth (feet) To	Thickness (feet)	General description:
Permian	Quartermaster group	0	305	305	No samples. 0-285 ft. red shale, 285-305 ft.
	Whitehorse group	305	1,050	745	Top 250 ft.: Cloud Chief gypsums, red shales, and some red sandstones. Bottom 495 ft.: Fine red sand with gypsum in upper part.
	Dog Creek shale	1,050	1,308	258	Red shale.
	Blaine formation	1,308	1,556	248	Interbedded gypsum and red shale, some dolomitic limestone in middle part.
	Flower Pot shale	1,556	1,650	94	Red and grayish-green shale.
	Duncan-Clear Fork group	1,650	3,977	2,327	Red shale with thin beds of grayish-green shale; thin beds of gypsum and dolomitic limestone in bottom 500 ft.
	Wichita group	3,977	4,460	483	Top 228 ft.: Anhydrite. Middle 155 ft.: Interbedded anhydrite, greenish-gray shales, and dolomitic limestones. Bottom 100 ft.: Dolomitic limestone, some interbedded anhydrite.
	Cisco group	4,460	7,290±	2,830	Top 1,970 ft.: Maroon shale with varying amounts of arkose. Bottom 860 ft.: Interbedded limestone, arkose, and maroon shale.
	Canyon group	7,290±	10,380±	3,090	Limestone with considerable arkose present, some thin shale beds.
Pennsylvanian	Strawn group	10,380±	14,025±	3,645	Top 2,150 ft.: Predominantly limestone, with some arkose and limestone conglomerates, some dark-gray calcareous shales, several shows of gas in more sandy phases. Bottom 1,495 ft.: Interbedded dark-gray shale and limestone, some conglomerates, traces of arkose, few shows of gas.
	Bend group?	14,025±	14,582± T.D.	14,582 T.D.	Dark gray to black shale with thin beds of dolomitic limestone.



The map shows a part of the Anadarko basin in southwestern Oklahoma in which Continental Oil Co.'s No. 1 Proctor is located. Several deep tests are being drilled in this region. Anderson-Pritchard test, Section 15-18-9w, Kingfisher County, total depth 8,507 ft., and Sinclair Prairie, Section 1-6-13w, Caddo County, total depth 7,911 ft., are still drilling in Pennsylvanian formations. W. R. Ramsey, Section 16-14-9w, Canadian County, topped Mississippian at 8,011 ft. and is now drilling below 9,554 ft. Texas Co., Section 2-5-12, Caddo County, was started as a deep test; it topped Mississippian at 1,548 ft. and Viola at 2,543 ft.; after finding gas and a show of oil it was shut down in the Viola at a total depth of 2,556 ft. Magnolia, Section 31-18n-14w, Dewey County, is rigging up preparatory to drilling a 6,000-ft. test. Drilling activity directed toward seeking production at shallower depths has been stimulated in the general vicinity of the Hobart pool, Kiowa County, as the result of the 2,000-bbl. pool opener, the Gled-Tarr well, Section 20-7-17w, in May of this year, which found production in the Viola which was topped at 1,049 ft. Subsequently two offsets have been drilled by Shell. A fourth offset drilled by Phillips sprayed oil in 5,000,000 cu. ft. of gas before pipe was cemented last week. The Hobart pool, which is 25 miles southeast of Continental's No. 1 Proctor, plugged back from 14,582 ft. in Pennsylvanian, is the producing area nearest to this deep test. Between these two points formations plunge steeply northward.

Deep Well Tests Equipment and Adds to Experience

By LESLIE FAIN
Fain Drilling Co.

UNEXPECTED occurrences and situations are common in the drilling business; and while the Fain Drilling Co. was not surprised when Continental's No. 1 Proctor exceeded depths formerly drilled in the Mid-Continent, we did not anticipate any such depth as 14,582 ft. when we moved onto the location in July 1938. The drilling of the test was as interesting to us as the geological information obtained was to the geologist, as it was our first experience in drilling an exploratory test to such depth, and we were gratified to see how efficiently our drilling equipment and organization functioned.

The principal advantage accruing to our organization from the drilling of the deepest test in the Mid-Continent has been the close acquaintanceship with the problems of deep-well drilling, the solutions of which are only obtained by facing them under actual conditions. It has added to the experience of our men and directing personnel in a great number of ways which will be extremely helpful in encountering unusual conditions in further deep exploratory work. We were really in the exploratory class ourselves, as this was the first time diesel-electric equipment had been used in exploring to such depths, and we were anxious to test its performance.

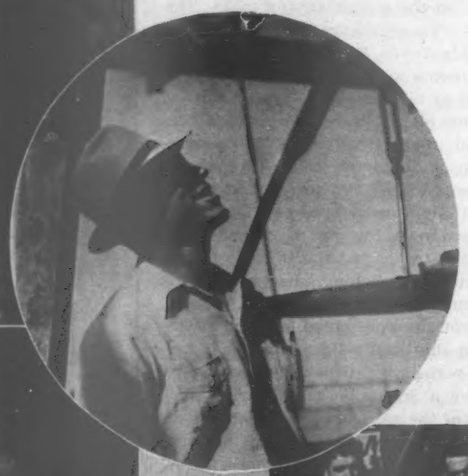
We are also happy to have had the opportunity of working in such close contact with the operating personnel of the Continental Oil Co.

Our main function was to furnish the drilling equipment. Circumstances requiring unusual drilling procedure were discussed with our supervising personnel, as they were in position to know the capabilities of the rig and what could be done from a mechanical standpoint.

Continental officials indicated that they might want to drill the test deeper than they originally intended, but we knew the diesel-electric rig used was capable of going beyond 12,000 ft., and the drilling of the No. 1 Proctor indicates that without any revisions it could easily drill beyond 15,000 ft.

The rig had just completed drilling No. 1 Bugher,

Leslie Fain started in the drilling contracting business early in the Oklahoma City field and was very active in the north end, drilling four out of five wells on the Lincoln Boulevard parkway facing the State Capitol. His organization now has diesel-electric, mechanical and steam equipment.



Top: Daylight crew. Just above: Evening tour. Right: Morning tour. In circle: C. A. Urice, tool pusher, Fain Drilling Co., watches weight indicator during washing-over and cutting-out job

14,582 feet
NEW MID-CONTINENT RECORD
set with a
Moore derrick
NEW MID-CONTINENT RECORD SET AT 14,582 FEET
Elk City, Oklahoma, Nov. 20. (Special) The Deep Test Well of the Continental Oil Company was abandoned today after reaching a new mid-continent record of 14,582 feet.
Skillful and experienced drilling operators working with dependable equipment deserve great credit for this epochal achievement. Fain Drilling Company was the contractor. The well is only 422 feet short of a world record.

The Continental Oil Company's Proctor No. 1
Washita County, Oklahoma

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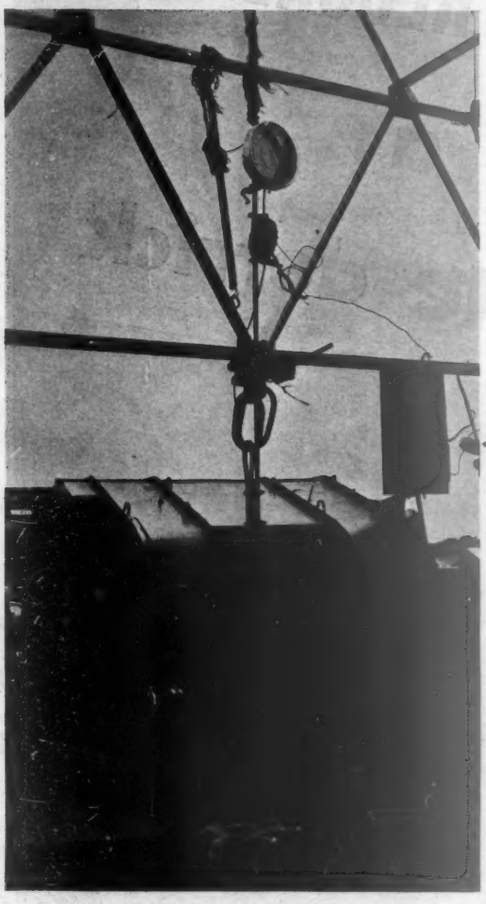

View of the standby unit on Continental's Proctor No. 1, Oklahoma. Note the Martin-Decker Special Weight Indicator on the deadline, and Quintuplex Drilling Control at right of drawworks.

Continental's Proctor No. 1 in Oklahoma is *the deepest well ever drilled in the Mid-Continent fields,* and it was controlled with Martin-Decker instruments every foot of the way! For this job, Fain Drilling Company picked the Quintuplex and the Special to handle the nearly *three miles* of whirling drill pipe used in making the hole.

The fact that Martin-Decker Products have been used on the last 14 world's record-breaking deep wells—and now on Mid-Continent's deepest hole—is highly significant. It *further* proves that through the years Martin-Decker has built the kind of instruments that are dependable under the most severe conditions . . . and that Martin-Decker instruments meet every requirement for *precision* control of today's deep drilling operations.

Tomorrow, Martin-Decker will be ready with the instruments that will be used to drill deeper and deeper in the never-ending search for oil!

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near Noble, Cleveland County, Oklahoma, to total depth of 7,682 ft., when it was moved to the No. 1 Proctor and rigged up. No changes were made in the equipment or its arrangement. The rig consists of two large electrical generating units and an auxiliary generating unit. Each of the large units has a 140 and a 50-kw. General Electric direct-current generator directly driven by a 300-hp. Fairbanks-Morse diesel engine. The auxiliary unit is composed of a 50-kw. General Electric direct-current generator driven by a 160-hp. Fairbanks-Morse engine. The hoist is driven by a 350-hp. mill-type motor, one of the mud pumps by a 300-hp. motor and the other by a 225-hp. motor.

Due to its design and construction, this electric rig is the equal of steam for deep drilling and has some characteristics which surpass steam as a drilling medium. Any generator or combination of generators can be used to supply current at the particular point desired, the driller having at his instant disposal the amount of power required. The hoist motor has an overload capacity of 750 hp. continuous for 1 hour, and the pump motors may also be safely overloaded. Stalling of the generator engines due to overload is impossible, as the generators are coordinated with them.

The control board allows for great flexibility in generator combinations and distribution of the current, and both pumps, the hoist and all of the auxiliary equipment can be operated simultaneously but independently of each other.

The hoist is a UBLS 54 Emsco, and the pumps are 20 by 7¾-in. power-driven Gardner-Denver pumps; the derrick equipment, crown and traveling blocks, hook, elevators and swivel have a load rating of 300 tons.

Several slight revisions were made during the drilling of the No. 1 Porctor. A 1¼-in. drilling line was installed preparatory to running the casing at 10,196 ft. Drive sprocket on the reduction gear was reduced and the high jack-shaft sprocket was increased at about 13,000 ft.; the former gave greater power when hoisting in the low-low or high-low speeds and the latter gave more speed in high-high and low-high.

Early in July, when the well reached 13,000 ft., we decided on the addition of standby equipment, as at that depth any mechanical failure requiring only a short time to repair would jeopardize the hole unless the means of moving the pipe and maintaining circulation were available.. The standby hoist was a 46 MA Emsco driven by a Fairbanks-Morse horizontal diesel engine, and the standby pump was a 7¼ by 14-in. Gardner-Denver pump, also driven by a horizontal engine. The only time the standby equipment was used was in testing to see that the pipe could be pulled out of the hole or circulation maintained.

Glenn Linn, general superintendent of our company, spent much of his time at the No. 1 Proctor and in addition we have kept C. A. Urice at the well constantly since September 1938. Mr. Urice has been in charge of the diesel-electric rig practically all of the time since its purchase.

Due to distance from a supply point, a complete stock of replacement parts was kept at the rig. Every effort was made by Mr. Urice and Mr. Linn to anticipate equipment that might be needed and have it on hand against any emergency. Request for supplies were phoned to our Oklahoma City office, the needed parts or equipment obtained, and then sent by truck or rail express to the location. By close acquaintance with the time tables we were generally able to get material to the rig by this method in less time than it would have taken for a man to drive from Elk City to Oklahoma City and return.

R. L. Slagle, day tour driller; George Prollock, morning tour driller and Tillman Williams, evening tour driller, have all been working for us for a number of years and our confidence in their ability and judgment was justified by their handling of the job. Their roughnecks are also old men with our company.

Instead of hauling the cores and cuttings from the well to a central laboratory, the Sun Oil Co. has arranged to bring the laboratory to the well. This laboratory is fully equipped to make all needed paleontological determinations on wells in the Gulf Coast area and has proved especially useful in servicing wildcat tests. It is also equipped to make all ordinary tests

ENGINEERING & OPERATING

NOVEMBER 30, 1939

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Utilizing the findings of a new electric-logging device, one important producer in the new Illinois fields is controlling the shooting of oil wells. The means by which the readings of the equipment are correlated with the depth at which oil is known to be present is explained. Special attention is given to the avoidance of shooting in water areas.

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High Degree of Fractionation Accomplished in New Unit

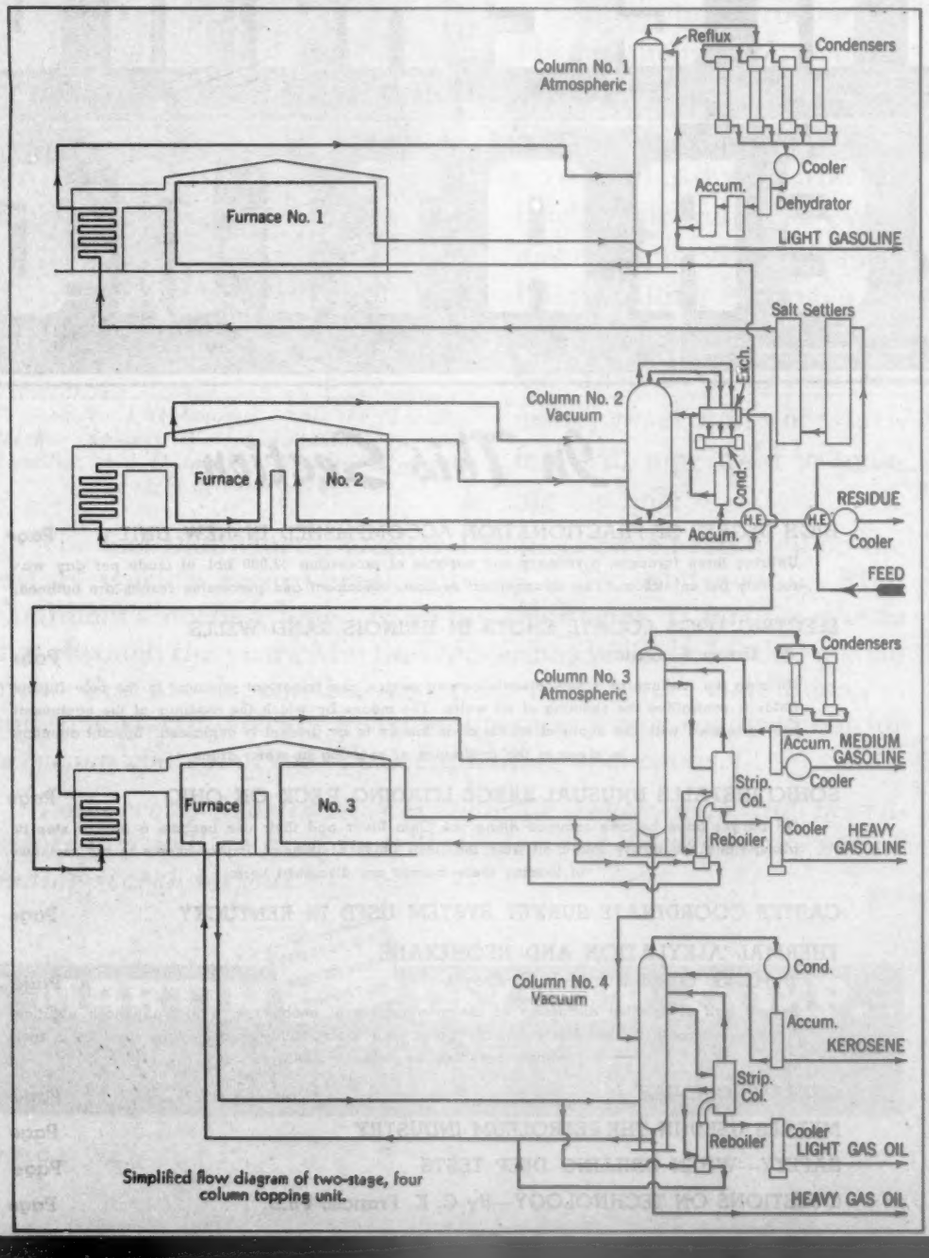
MODERN refining requires the utilization of every known means for conserving heat as an important step in keeping the cost of manufacturing at a low level. The problem of heat conservation is so intimately dependent upon the design of the equipment and its operation that one cannot be discussed without regard to the other. In turn, both of these are dependent upon the nature of products to be manufactured, capacity, location and type of crude to be processed. All of these factors are discussed in a description of a recently completed 32,000-bbl.-per-day topping plant installed in the United States, which according to "Heat Engineering" embodies the following features:

1. Large capacity.
2. No open steam used for stripping.
3. Reboiling of bottoms to obtain stripping.
4. Special design of trays to provide for vapor and liquid loads.

The capacity is 32,000 bbl. per day of Venezuelan crude. On account of the scarcity of water and its consequent high cost, the unit is designed to operate without using any open steam for stripping. This eliminates the loss of fresh water which would result if stripping steam were used and reduces corrosion in the equipment.

In order to strip the bottoms properly and to control the degree of fractionation in the overhead products, arrangements have been made for reboiling the bottoms from all towers and strippers. Bottoms from the main fractionating towers are recirculated and heated in direct-fired heaters. The bottoms in the strippers are reboiled by indirect heating, using heat-exchange equipment. To take care of high liquid and vapor loads in various parts of the fractionating equipment, specially designed trays with two liquid passes were provided.

The four main fractionating columns vary from 9 ft. to 14 ft. in diameter and from 47 ft. to 75 ft. in height. These towers operate in conjunction with three large, direct-fired furnaces. The first and third columns operate at atmospheric pressure and the second and fourth columns are under vacuum.



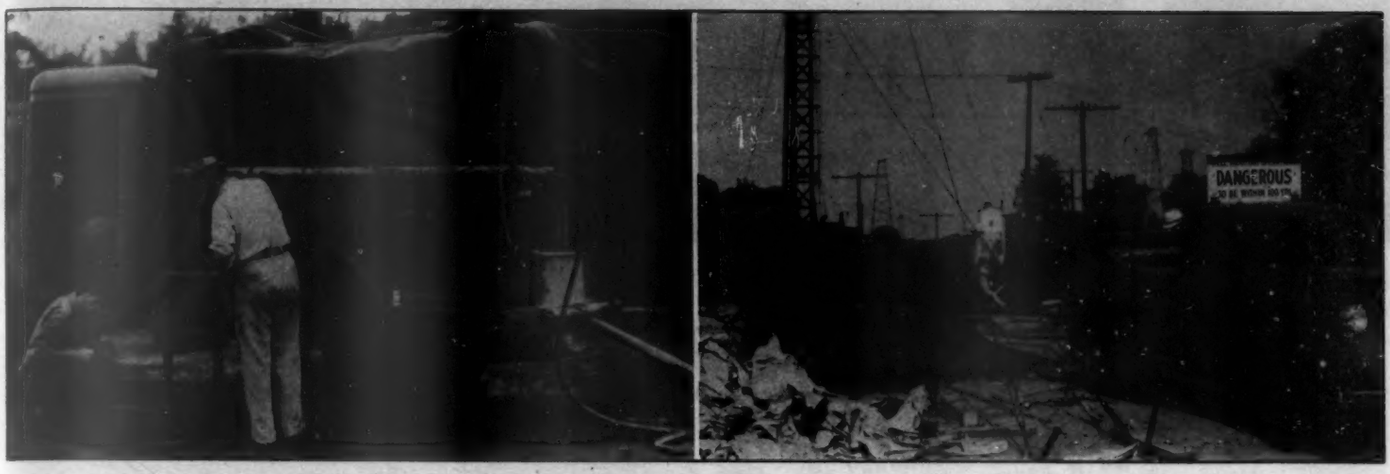
Simplified flow diagram of two-stage, four column topping unit.

Flow of Oil

Light or heavy Venezuelan crude is preheated in five heat exchangers in series by the residue or fuel oil stream from the bottom of column No. 2 (see flow chart). The crude charge then flows through salt settlers to the convection section of the first furnace and thence to the first column, where light gasoline is taken as an overhead product. A part of the bottoms from the first column is recirculated through the radiant section of the first furnace to provide heat for reboiling and stripping the bottoms. Bottoms from the first column are pumped through a sixth, fuel-oil heat exchanger and then through the convection section and one-half of the radiant section of the second furnace. This stream then enters the second column which operates under vacuum. A bulk overhead distillate is removed as a vapor, condensed and cooled. The net yield of product from the top of No. 2 column is pumped through an overhead vapor exchanger on this column and through the convection section of No. 3 furnace to No. 3 column. A portion of the bottoms from No. 2 column is recirculated through the remaining half of the radiant section of No. 2 furnace. Sufficient heat is added to obtain the necessary reboiling and stripping of bottoms and to regulate fractionation of the heavy ends in the overhead product. The net yield of bottoms, or fuel oil, from No. 2 column is pumped through the six, previously-mentioned heat exchangers and a cooler to storage.

In No. 3 column the overhead from No. 2 column is fractionated into a heavy gasoline or, if the side-stream stripper is used, can be fractionated into medium and heavy gasoline cuts and bottoms. A portion of the bottoms from this column is recirculated through part of the radiant section of No. 3 furnace to obtain heat necessary for reboiling and stripping. Part of these recirculated bottoms is used for reboiling the bottoms in the side stream stripper by means of a heat exchanger reboiler located beneath it.

The net yield of bottoms from No. 3 column is pumped direct to the fourth column which operates under vacuum. Kerosene is removed as an overhead product from this column and, if the side-stream stripper is used, a light gas-oil cut can be obtained as a side stream and heavy gas oil as a bottoms product. When the side-stream stripper is not used, light and heavy gas oils are combined to form the bottoms product. The reboiling of the side stream and bottoms on this column is the same as for column No. 3 except that a part of the bottoms from column No. 4 is circulated through the remaining radiant surface in furnace No. 3.



Left: Preparing to run an electrical-logging device in an Illinois well to obtain data for locating shot. Right: Walking toward well head to check landing of a shot in an Illinois well. After the shooter gets his line out of the hole, the shot will be tamped with sand. A time bomb discharges the shot

Electrical Logs Locate Shots in Illinois Sand Wells

By HARRY F. SIMONS

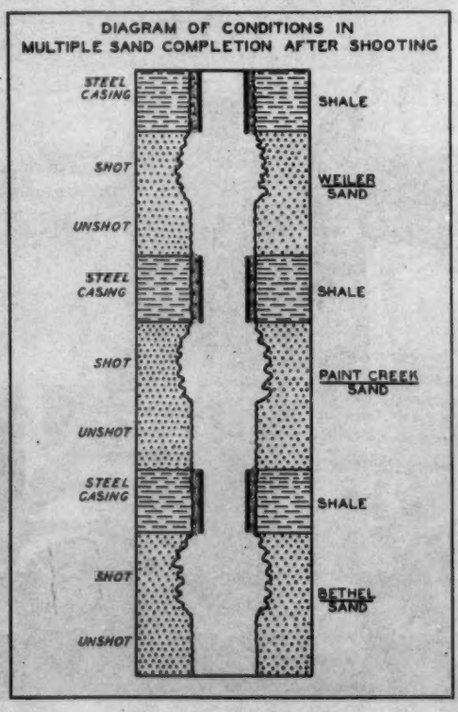
THE technique of shooting oil-producing sands has improved with the years and the practice recently experienced a major revival with the discovery of oil in the low-pressure horizons in the Chester sands in Illinois. The shattering of the formation by the discharge of a considerable quantity of nitroglycerin was accompanied by an increase in oil but the hazard of increasing the water production was also present. In their efforts to improve the wells as much as possible, while at the same time minimizing the dangers of water encroachment, the Carter Oil Co. has introduced "shooting control" in the Louden field in Fayette County, Illinois.

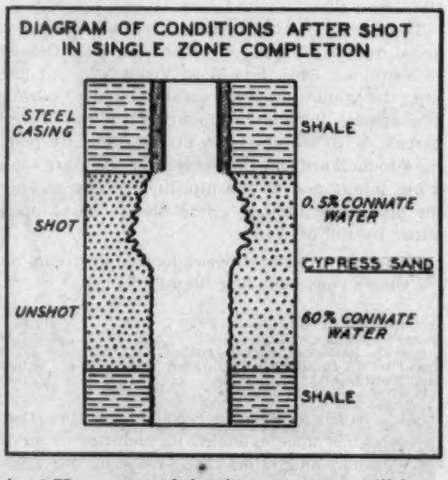
Under this method, no well is shot until the electrical logs have been carefully studied by the geological department which recommends the size of the shot and its location in relation to the sand. Through this practice the amount of water produced in Carter wells has been materially reduced and the wells are generally in good position to plug off water in case it becomes excessive.

The Louden field produces from three sand horizons in the Chester series of Mississippian age. On structure these sands are found between 1,450 ft. and 1,750 ft. and in order of occurrence from top to bottom are the Cypress (Weiler), the Paint Creek (stray), and the Bethel (Benoist). The Weiler varies in thickness from 0 to 70 ft., the stray from 0 to 40 ft. and the Bethel from 0 to 50 ft. In some areas the Weiler contains so much interbedded shale that it is practically unproductive and generally the sand contains a number of these shale breaks; in some locations it is divided by shale into two separate sections. It is the most widely distributed of the three zones.

The Paint Creek stray is absent in some parts of the pool and in other parts is very well developed; it generally contains less shale than the overlying Weiler. The Paint Creek is immediately overlain by the Weiler and is underlain by the Bethel. The Bethel is quite similar to the two sands above it but is more consistent in occurrence.

Due to their similarity in character, the various sands are hard to distinguish and are generally most readily identified by the grain size. Porosity in each of the zones varies from 15 to 25 per cent and the permeability varies from 0 to 700 millidarcys. Approximately 20 per cent of each sand will be unproductive due to shale conditions and about 75 per cent of the three-zone area will have production in only two of the sands.

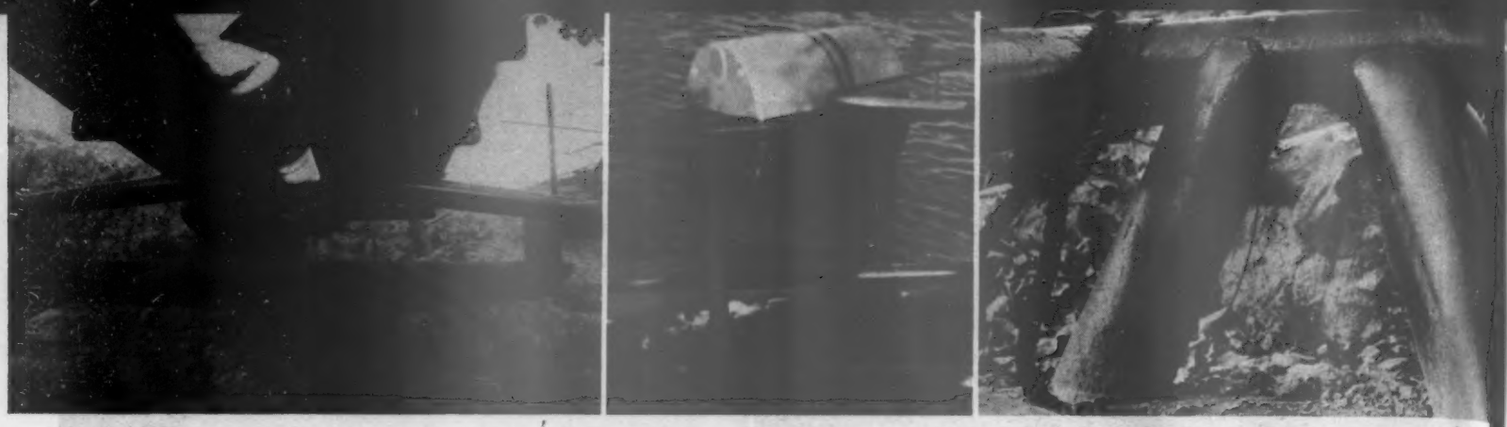




There is no definite water table in any of the three producing zones but there is a high percentage of connate water present which grades downward from practically 0 per cent to entirely water. Due to the shale lenses in the sand, the vertical movement of the water is practically impossible while horizontal movement over a wide area is greatly restricted. By controlled shooting, water production is kept at a minimum, lifting costs are reduced and more oil is obtained. Under normal conditions, the water moves more freely through the sand than does the oil and it is therefore essential that the movement be restricted from the time the well starts to produce.

Before running the casing, the well is electrically logged and the shooting point selected. The 6-in. o.d. electrically welded casing is generally set about 2 ft. in the sand and the pay drilled with cable tools. In this connection it may be well to mention the Carter Oil Co. method of

(Continued on Page 62)



Left: Center anchor hinges, fill-up line and braces and bottom of walkway. Center: Detail of one side of center hinge. Right: Detail of one of corner hinges

Sohio Installs Unusual Barge Loading Rack on Ohio

CREWS responsible for the loading of barges with oil for shipment up the Ohio River from western Kentucky don't have to chant, "River, stay away from my door," because a new-type loading rack permits the work to go on despite the rise and fall of the water level. The loading rack was designed and installed by Frank Vogler, superintendent for the Sohio Corp., and is located north of Stanley, Ky., on the south bank of the Ohio River about 8 miles upstream from the mouth of the Green River.

The Green and Ohio rivers have been used for years for the shipping of oil to refineries located in Kentucky, Ohio, and West Virginia. Until last year the volume was not great enough to permit any special installation for the loading of the barges. With the discovery of the Birk City pool, the production from this section of the state took a big jump; and as the pipe-line outlets serving the area were limited, crude had to be shipped either by rail or water.

There are several refineries located upstream on the Ohio River, including the following:

Refinery and location—	Capacity (bbl.)
Aetna Refining Co., Louisville	4,500
Louisville Refining Co., Louisville	5,000
Standard Oil Co. (Ohio), Covington	10,000
Stoll Refining Co., Louisville	2,000

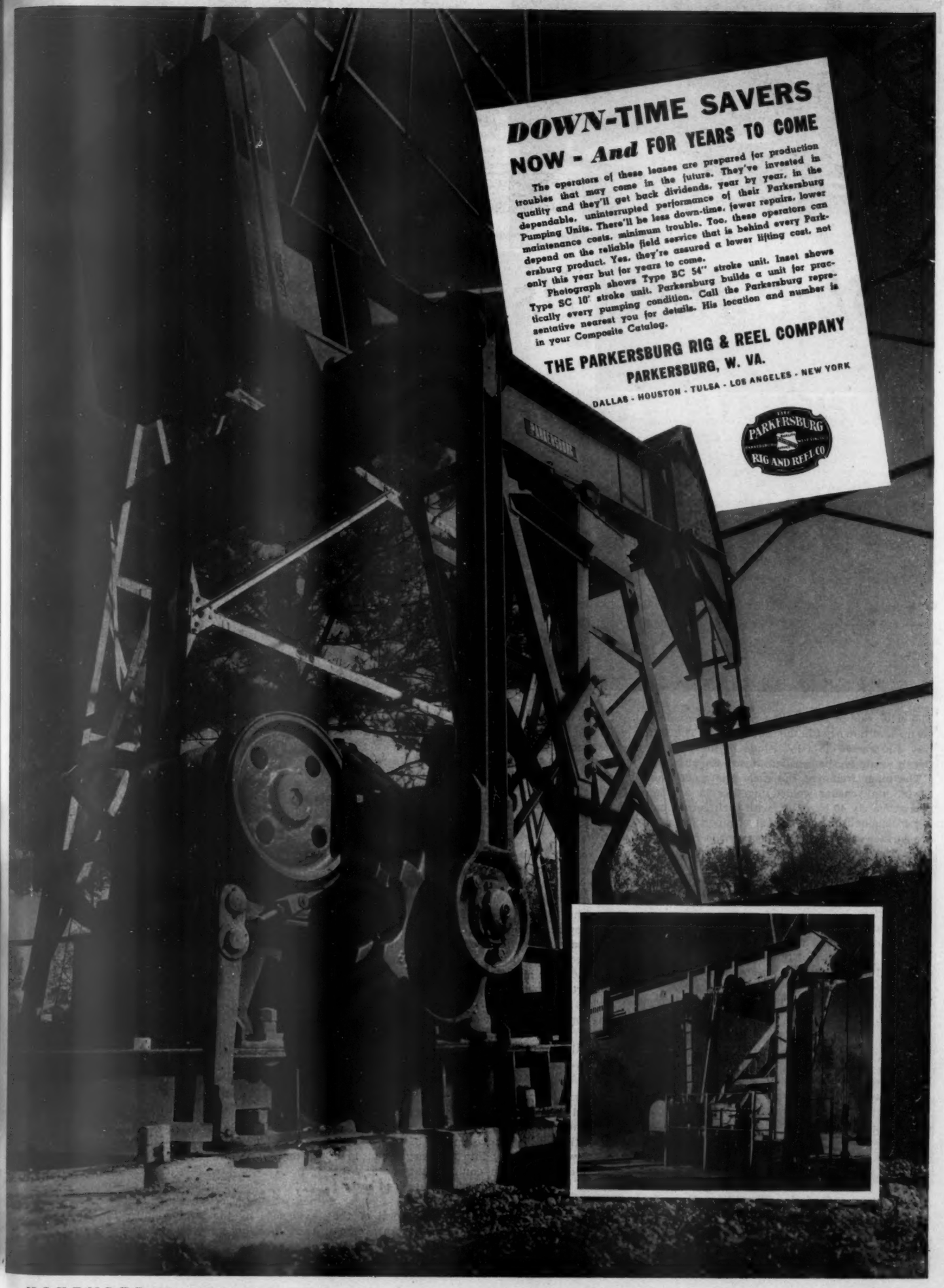
Sohio began purchasing crude in the Birk City field and has since extended its facilities to serve the Corydon and other discoveries in the area. Crude for the Covington refinery was formerly delivered through a branch pipe line from the northern part of Ohio. Some of the crude requirements are still supplied in this manner, although most of the oil is delivered by the river route. With the new flush fields in eastern Illinois and western Indiana pushing to the fore, more shipments in this manner may be expected.

The usual means of loading the barges was to erect a dock for anchoring the barges and then running a hose from a pipe line on the river bank. Holding the barge away from the bank was often a task, particularly if the weather was bad. During times of drought or low water on the rivers, an unusually long hose was required, and several men were needed to connect it to the barge. As one launch generally shoves several barges, the loading crew only works a few days a week. High water likewise presented a problem, as there was then no satisfactory means of anchoring the barges.

It was therefore necessary to have a loading rack that would work equally well in high or low water, require a minimum of workmen, and provide a safe anchorage for the barge. The new loading terminal is located at a point where the river bank is high and above water even during flood times. Tankage for the storage of the oil is located on a slight knoll about a quarter of a mile from the loading rack. The barges can thus be loaded with the oil by gravity even during high water, and shipment of the oil is possible as long as the producing properties continue to operate. The Ohio is quite a turbulent stream and often floods much of the surrounding country. Last spring it was at flood stage over 60 days.

The loading rack now in use consists of a rectangular-shaped frame made from 8¾-in. pipe, with the water side supported by three 110-bbl. steel tanks and the bank side anchored by hinges.

Left: View of floating loading terminal near Stanley, Ky. Left, below: Single 6-in. hose 18 ft. in length used with floating terminal. Below, top: Barge used for loading. Fill-up line at extreme left. Below, bottom: Rubber and steel hose used when loading from ordinary barge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The operators of these leases are prepared for production troubles that may come in the future. They've invested in quality and they'll get back dividends, year by year, in the dependable, uninterrupted performance of their Parkersburg Pumping Units. There'll be less down-time, fewer repairs, lower maintenance costs, minimum trouble. Too, these operators can depend on the reliable field service that is behind every Parkersburg product. Yes, they're assured a lower lifting cost, not only this year but for years to come.
Photograph shows Type BC 54" stroke unit. Inset shows Type SC 10' stroke unit. Parkersburg builds a unit for practically every pumping condition. Call the Parkersburg representative nearest you for details. His location and number is in your Composite Catalog.
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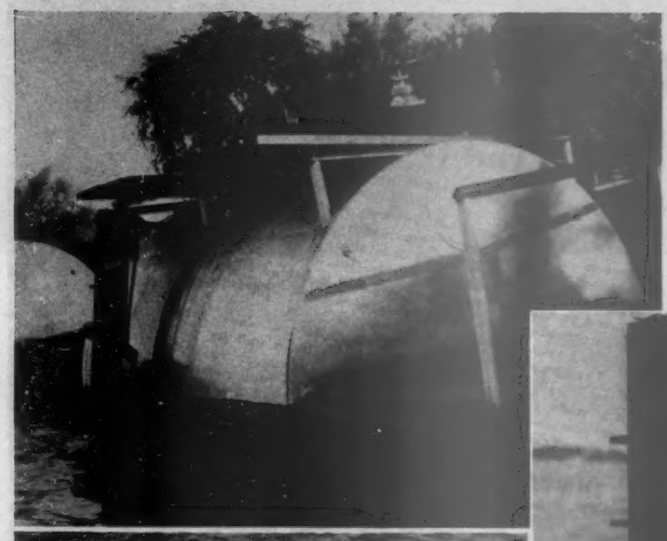

Left: Loading platform on center pontoon. Left, below: Swing and bolt union allows for lowering and raising of fill-up line. Below: Bumpers made from H-beams with rollers to prevent bending as barge sinks

The river side of the loading rack is thus able to go up and down with the water level. The rack was constructed at a low stage in the river, so that it would not be beached in case the river fell.

The main frame of the rack was made from 8¾-in. junk casing welded together in a frame approximately 40 by 60 ft., with each corner having a diagonal brace of 4-in. steel pipe. The sides are further supported by trusses made from 2-in. pipe. The 110-bbl. tanks on the river side of the rack were slipped over the 8¾-in. pipe and then welded to seal out the water. Ample buoyancy is provided, as only about one-sixth of the tanks is under water.

The center tank is used for loading platform and the hose connection. The fill-up line coming from the bank forms part of the bridge. It is partially supported by two 4-in. pipe braces from each side of the upper part of the frame and by a set of braces on the lower side. The bridge is made from 3-in. pipe, with a 2-in.-pipe hand rail. The bridge floor is covered with 2-in. oak planking, with cleats to prevent slipping.

The 8¾-in. pipe coming from the storage tanks has a valve on the river bank, a welded half swing, and a union for attaching to fill-up line on the rack. This permits the rack to move up and down without damage to the connections. On the loading end of the fill-up line an 8¾ to 6-in. reducer and a gate valve with flange couplings allows for the attaching of the loading hose, which is about 18 ft. in length and easily handled by one man. A plug in the lower end of the fill-up line allows for cleaning.

The hinges on the upper end are of typical oil-field construction and are rugged and simple. A short length of 7-in. pipe, supported by 7-in. legs set in concrete, is inserted in the 8¾-in. pipe at each end. An anchor joint goes back into a concrete base set in the bank. The center hinge consists of a flattened U, with wings of 7-in. pipe inserted in the larger pipe on each side. The U is supported by legs set in concrete and anchored in a manner similar to the corner hinges. Sandbags prevent washing of the dirt around the concrete during high water.

To relieve some of the strain from the hinges, guy lines extend from the lower ends of the frame to large trees on the river bank. Long turnbuckles allow for tightening or loosening of the line with the rise and fall of the river.

To prevent damage to the buoy tanks from the barges banging against them, special buffers were fabricated from H-beams, with rollers on the outer side. These are hinged at one point on each buffer to a short 6-in. piece of pipe with slots which match the slots in a slightly larger piece of pipe welded to the tanks. The shock of the barge striking the tanks is thus lessened. The rollers on the outer side of the buffers prevent the barge from binding as it sinks in the water due to the loading of the oil.

For loading, a barge is pushed alongside the rack and tied with hawsers. The rubber hose is then attached to the valve on the loading platform and to the loading valve on the barge. The oil then flows by gravity into the barge. One man can handle all of the equipment necessary for loading. The general procedure is to load several barges at a time.

The refining department owns several of the barges used and leases other barges. An average of approximately 5,000 bbl. daily is shipped upstream in this manner. As the barges are loaded going upstream, the trip from the loading rack to the refinery requires several days. The cost of the river shipments falls between that of pipe-line delivery and railroad tank-car transportation. At the present time Sohio is building another loading rack at Mount Vernon, Ind., at the terminal of its 6-in. line from the Griffin, Indiana, pool.

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Electrical Logs Locate Shots

(Continued from Page 59)

completing the wells in several zones by means of removable casing. (The Oil and Gas Journal, May 11, 1939, p. 49). However, the shooting-control method is used regardless of whether the well is to produce from one or several zones.

If the well has been drilled too deep, it is plugged back immediately. If a study of the log shows that the upper portion of the sand has a low percentage of water, it is prepared for a shot. In many cases it has been found that only a few feet of a pay zone could be shot satisfactorily and often wells are not shot because of the danger of starting water encroachment.

Liquid nitroglycerin in shells is used for blasting the formation. The size of the hole and the length of the section to be shot determine the amount of glycerin that can be used and this varies from 10 to 80 qt. The smaller shot will affect only a few feet while the larger shot will shatter practically the entire sand section. Generally from 3 to 20 ft. of the sand section is not shot thus leaving a maximum of 60 ft. in the Cypress, 30 ft. in the Paint Creek and 40 ft. in the Bethel which can be shot. The minimum section shot in each zone is seldom less than 10 ft.

If a large cavity is desired, the well is first shot lightly and then shot again with a heavier charge being used. In some cases, solidified glycerin has been used to further enlarge the shot zone. The sands all react favorably to the shooting and production is substantially increased. In some cases wells having low productivity have been turned into very good producers by shooting.

The shots must be tamped carefully as the casing may be damaged due to its being located close to the point of discharge. Sand tamping up into the casing is generally used although in cases where the zone for tamping is limited, cement and other hardening compounds have been used. There is apparently little difference in the effect of the shot on the sand from the two methods of tamping and the latter method has one advantage in that it is easy to clean out after the shot is discharged. The nitroglycerin is discharged by a time bomb.

The condition of the well after shooting is such that it may be expected to produce throughout its life with very little trouble from water encroachment. The bottom part of the well bore remains the size it was originally drilled while the upper part of the producing horizon is fractured and enlarged. Most of the production will come from the upper zone although the lower section will produce some oil and some water, but no more water than it did before the shot. As the well bore is in condition to plug back effectively, the water encroachment can thus be controlled. All three of the zones are to be repressured, and it is desirable to keep the water production low.

When the field nears the depletion point, the upper zone which has been shot will go to making water but it will then be time to abandon the properties as practically all of the recoverable oil will have been taken from the sand. Effectiveness of the selective shooting-control method is evidenced by the large number of wells not so treated having a high percentage of water with a consequent treating problem, while the wells carefully shot still have low water production.

Operating Ideas

Fill Up Drilled Hole Through Flow Line

Most rotary drillers prefer to keep the hole full of mud while pulling the drill pipe but in Illinois the wells are drilled so fast the rigging up of this device must be accomplished in a few moments and with a minimum expense. This crew installed a tee and stop cock on the mud line leading to the pressure gage. This 2-in. line was then run into the flow pipe. By closing the stop cock at the base of the standpipe and opening the one on the 2-in. line, the mud can be pumped into the hole. The other 2-in. pipe protruding from the flow line leads to the sampling box. The 2-in. pipe on the sill serves as a wash pipe while coming out of hole.

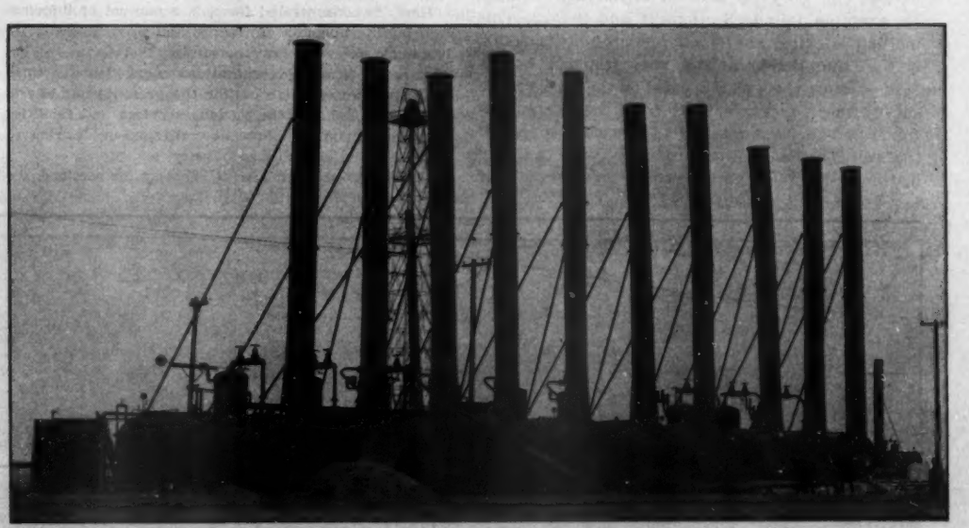
Light Type of Lease Ladder

A light ladder for use around lease tanks has been made which is readily portable by one man and yet strong enough to serve as scaffold when painting tanks. It is made by using four pieces of 1 by 4-in. lumber in place of the usual 2 by 4-in. uprights. The slender uprights form a double bowed section in the center which possesses ample lateral stiffness to precent swaying or sagging; it is braced simply by attaching each of the rungs to the four stringers.

Power Takeoff for Mud Pump

A drilling contractor at Montebello, Calif., has installed a truck transmission and rear

end as power takeoff for the mud pump driven by a gasoline engine. It is operated as part of the equipment of a rotary rig.



Large Battery of Boilers for Drilling Wells

An operator in the Long Beach field, California, has carried on a development program at the harbor in which a battery of 10 boilers has been employed. This battery has sufficient capacity for supplying steam to three rigs drilling at the same time.

Carter Coordinate Survey System Used in Kentucky

IT may have been good enough for the pioneers, but the survey system and the method of locating property lines, and more particularly oil wells and drilling tests, has been remodeled by the oil companies operating in Kentucky. While the legal description still says that the Jones farm is bounded by a certain creek and a few poorly designated trees, the oil companies are locating wells by a system resembling the section-township-range method common to other states. The original survey designated property lines according to local features, and nearly all farms in the area have irregular boundaries.

Mapping and correlation of formations in various wells were practically impossible under the old system. The fact that the well was located so many paces from the barn on the Jones farm meant very little to the map maker when he couldn't locate the farm, much less the barn. Descriptions accurately locating the well were too lengthy if they were to be accurate.

Topographic maps published by the U. S. Geological Survey and the Kentucky State Geological Survey have long been printed in approximately square sections 15' of a degree in length and width. One of the major companies in the area (Carter Oil Co.) began using this as a base for the location of their own and other wells. By dividing each 5' rectangle into 25 parts, they were able to locate the wells by degrees and minutes.

To further simplify well locations, they set up an arbitrary system with zero located at 36° 30' N. and 89° 30' W. Going northward they designated the 5' divisions with letters, and going eastward the 5' divisions were numbered. This made rectangular-shaped "townships" containing approximately 25 sq. miles. These were then divided into 25 equal parts and numbered, beginning in the upper right corner of the "township" and ending in the lower left corner. The mile divisions, the same as the regular sections, can be broken down readily into one sixty-fourths, approximately 10 acres. The Corydon pool in Henderson County, for example, falls in Sections 18 and 19-P-22. This method is called the "Carter coordinate system" or the Laughlin-Simmons survey system.

In practice, the well is spotted on the topographic survey sheet, measurements from the boundaries taken and then transferred to the work maps. If the well is staked and the surveyors wish to locate it, the topographic map is used for reference and measurements made to the nearest boundary. The well is thus located as 1,000 ft. from the north line and 1,500 ft. from the east line of Q-30, and therefore is in Section 1 of that township.

Another peculiarity in the designation of wells and tests was the method of applying the farm name as the principal identification medium. Instead of the well being known as the Deep Hole Oil Co.'s No. 1 Jones and properly located, it was simply the No. 1 Jones; the second well drilled on the farm became the No. 2 Jones, regardless of whether it was drilled by a different oil company or not.

If prospectors in the area had been content with drilling one dry hole to the farm, this wouldn't have been so bad. But one operator would get a slight show of oil and then abandon the lease; several years later another operator would arrive and, hearing of the show, move some distance away and drill another hole, which would be the No. 2 Jones. The only record of the location of these holes is in the mind of the property owners.

Much information will be available to the oil companies when the wells are properly located and their logs correlated. However, the location of these old wells is very difficult, and it will be some time before this work is completed.

The location of future wells, while it will never be as easy as it is in the conventional areas, will be facilitated and map makers at a distance will not be handicapped by lack of knowledge of the trees and barns on the Jones farm.

BOOKS

FINDING AND PRODUCING OIL. 338 pp. New York: American Petroleum Institute. $3 (foreign countries, $3.50).

Here, in concentrated form, is a manual of information on the business of finding and producing oil, including a digest of laws pertaining thereto, and a list of persons, firms, or corporations engaged in the business. It is an effort to outline the present state of the art and to indicate the various services and facilities that are available to those now engaged or desiring to engage in the oil and gas industry.

The works starts out with chapters, or sections, devoted to geological methods of oil exploration, geophysical methods of exploration, methods of drilling, sampling, coring and bore-hole surveying, and then delves into the subject of production methods, laws, and miscellaneous topics. The book should be valuable to those who have no knowledge of the industry and who want to learn something about it quickly.

TECHNOLOGY, EMPLOYMENT, AND OUTPUT PER MAN IN PETROLEUM AND NATURAL-GAS PRODUCTION. By O. E. Kiessling, H. O. Rogers, G. R. Hopkins, N. Yaworski, R. L. Kiessling, J. Brian Eby, Lew Suverkrop, J. S. Ross, R. E. Heithecker, W. B. Berwald, Andrew M. Rowley, M. A. Schellhardt, Richard Sneddon, Boyd Guthrie, Herbert Schimmel, and J. C. Albright. 349 pp. Works Progress Administration.

This multiauthored volume attempts an answer to the questions: Has the growth of employment in the industry been permanently arrested? and What will be the net probable employment opportunities in the future? Major emphasis is given to the primary producing activities, while other branches are given relatively less attention, principally because data are less comprehensive. Marketing is considered only briefly in presenting a perspective of overall activity and employment. In general the inquiry is confined to an analysis of the relation between production and employment. Technology and changing physical conditions of operation are emphasized because of their importance to production, output per man, and the number of jobs available. The book, which is a research project of the W.P.A., is available without charge from the Bureau of Mines in Washington, D. C.

A.S.T.M. STANDARDS ON PETROLEUM PRODUCTS AND LUBRICANTS. 336 pp. Philadelphia: American Society for Testing Materials. $2.

Sixty-two standardized methods of test, ten specifications, and two lists of definitions and terms comprise this latest edition of an annually published work. The new edition includes several new standards published for the first time covering carbon residue, bum stability of gasoline, determination of tetraethyl lead in gasoline, consolidated specifications covering A.S.T.M. thermometers, and others.

RECENT MARINE SEDIMENTS. A symposium, edited by Parker D. Trask. 688 pp. Tulsa: American Association of Petroleum Geologists. $5 ($4 to A.A.P.G. members and associates).

This book, published by the American Association of Petroleum Geologists, is of interest not only to petroleum geologists who are doing research work on the origin of oil and source sediments, but is of value to oceanographers, physiographers, physicists, and general scientists. A symposium, it was prepared under the direction of a subcommittee of the Committee on Sedimentation of the Division of Geology and Geography of the National Research Council, Washington. The volume contains thirty-odd papers, divided into seven parts, such as: Transportation, Relation of Oceanography to Sedimentation, Deposits Associated With Strand Lime, Near-Shore Deposits, Pelagic Deposits, Special Features of Sediments and Methods of Study.

Turkey Creek field, Nueces County, lower Texas Gulf Coast

METALS in DRILLING

By W. L. NELSON

DRILLING STRING AND CASING

Ninth of a series devoted to the metallic materials that are used in drilling wells. Other articles have dealt with portable servicing equipment, slush pumps, rotary chain, rotary table, hoists, engine castings, pulley blocks, and bits. Materials that are discussed were described in published statements of metal manufacturers, fabricators and field men. In this particular article many materials will be neglected because a vast number of somewhat similar steels can be used—and hence only representative ones are given. In future articles, the materials used throughout the entire oil industry in producing oil, refineries, transportation, gasoline plants and bulk stations will be presented.

ALTHOUGH the field service that is encountered by drill collars, tool joints, drill pipe and casing is not as severe as that generally encountered by gears, rock-bit cutters, etc., a failure of the drill string is just as disastrous from the standpoint of cost as any other failure in the hole. Furthermore, the tonnage of the equipment here discussed is enormous and therefore the manufacturer and operator can save large sums of money by eliminating even small defects. At least 31 inexpensive low-alloy steels are available for high-duty constructional steels, and many of these could be, and may have been, utilized for the equipment discussed in this article, particularly for drill pipe, casing and couplings. However, the literature fails to disclose that many of these low-alloy steels have been utilized for drilling equipment.*

Manufacturers have found it advisable to inspect carefully this important equipment. The threads are examined for imperfections, the taper of the threads is measured by an instrument and exposed threads are often guarded during shipment by special caps. One manufacturer examines the upset end of his drill pipe by means of the magnaflux method by which the piece is sprinkled with powdered iron and exposed to a strong electrical current. The iron particles arrange themselves in a unique and unmistakable pattern at flaws or cracks. The same manufacturer has devised a long telescope which can be inserted into the tube for examination of the entire inner wall.

All of this equipment involves pipe threads, and hence galling becomes an important difficulty. Trouble with galling may be obviated to some extent by careful inspection and control during the drilling of the well. Joints should be made up tightly so that the joint does not loosen when parts of the string are put in tension. Ragged threads also contribute to galling, and certainly the inclusion of sand, scale, etc., in the pipe joint is not good practice. Much trouble can be avoided by simply wiping and oiling the joints. The manufacturer can also assist by avoiding decarburization. During heating of the steel, the carbon content at the surface may become low by migration of the carbon and subsequent burning of it at the surface. This results in a spot of soft steel, which is said to cold-weld itself to other metal surfaces when held together by tremendous force. Some manufacturers avoid decarburization by luting the threads with a boric acid paste prior to heating operations, and others accomplish the same results by controlling the composition of the gases in their heating furnaces. Still other manufacturers galvanize or zinc plate the threaded joints and others remove the small burrs that result from pipe threading by sand blasting.

The entire drill stem is subject to combined twisting, bending, tension and even compression at the bottom of the hole. During drilling the drill plug actually twists and untwists as it encounters strata of differing hardness or as the load on the bit is altered by lifting the string. These conditions combine to result in fatigue of the metal and the prevalence of notches such as those encountered at threads, upsets, or other abrupt changes in dimension, present many opportunities for fatigue cracks or fatigue failures. Even such small notches as the scratches left by machining or the identification numbers that are often cold-stamped on each piece of equipment may cause fatigue failure. The end joints of the string are particularly susceptible to failure by fatigue because of the continued flexing or bending which occurs most actively at the ends of the string. In general, it may be said that failure by repeated applications of stress (fatigue) will occur in most materials at a maximum stress that is less than half of the tensile strength of the material. In the presence of corrosive agents, of which even drilling mud or soil waters are examples, failure by fatigue may occur at stresses that are less than one-fourth of the tensile strength. Failure by fatigue appears to occur most actively at the notched sections mentioned above and hence great care is exercised by manufacturers and design engineers to avoid notches, scratches, etc., and if an abrupt change in dimension cannot be avoided the equipment is designed with a generous fillet. This general type of design has been followed until it is now common practice to use upset joints which are attached to the drill pipe, collars, joints, etc., by forging.

The pieces of equipment are so large that they cannot be heat-treated in ordinary furnaces or shops. The normal practice is to cool in air (normalize) and then reheat or temper to the minimum allowable ductility. The difficulties in handling such large pieces (some drill collars exceed 50 ft. in length) has made some manufacturers feel that the chances of a poor heat treatment are so great that heat treatments should not be attempted at all. The difficulty has been met in some degree by normalizing and drawing the entire piece, then oil quenching and drawing the ends. All of the difficulty in heat treating is ameliorated by the use of alloy steels. Carbon steels are extremely sensitive to quenching and drawing, whereas slight differences in the temperatures and rates of cooling make little difference when alloy steels are being heat-treated. Some enterprising manufacturers have devised special heat-treating furnaces and carriages for handling the stock, by which the long pieces are pushed progressively through the heating furnace, through a quenching zone, and through a drawing furnace. With such heat-treating furnaces it is possible to quench and draw the entire piece, which results in a uniformity of material which cannot be gained by other methods.

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TUBULAR DRILLING EQUIPMENT
Drill Collars and Tool Joints

Steel—	Approximate composition, per cent* C	Mn	Cr	Ni	Mo	Others	Approx. phys. properties Y.P.	Elong.	Brinell	Heat treatment	Reference
S.A.E. 3140	.4	.75	.6	1.25	...	...	125,000	16.5	300	O.Q. 1,500—D. 950	26
S.A.E. X3140	.4	.75	.75	1.25	...	...	108,000	21.5	300	Oil quenched and tempered	15-21
S.A.E. X3140†	.4	.75	.75	1.25	...	...	80,000	21.5	212	Normalized and drawn†	15
S.A.E. 4140	.42	.74	1.10	...	.2	...	130,000	17.5	300	O.Q. 1,560—D. 1,100	11-25
S.A.E. 4140‡	.34	.66	1.06	...	.3	...	132,000	18.0	302	O.Q. 1,550—D. 1,110	25
S.A.E. 6140	.4	.75	1.0	...	...	V 0.18	135,000	17.0	300	O.Q. 1,600—D. 1,050	22
Chrome molybdenum vanadium	.4	.65	1.25	...	.35	V 0.18	151,000	16.5	...	Normalized and drawn	22
S.A.E. 4340	.4	.65	.65	1.75	.35	...	130,000	17.0	310	O.Q. 1.525—D. 1,000	6
Manganese	.27	2.54	...	...	...	...	104,000	15.0	...	Heat treated	28
Drill Pipe											
Managenes molybdenum	.45	1.5	...	...	.2	0.25 Si max.	95,000	20.0	210	Normalized and drawn	11
Manganese vanadium	.5	1.6	...	...	...	V 0.1	95,000	20.0	210		22
Manganese vanadium	.38	1.75	(Si 0.6)	...	...	V 0.1	80,000	20.0	...		22
A.P.I. Grade A	.12	.43	...	...	...	...	40,000	43.0	...	Normalized	28
A.P.I. Grade B	.23	.76	...	...	...	...	49,000	39.0	...	Normalized	28
A.P.I. Grade C	.41	.77	...	...	...	...	57,500	30.0	...	Normalized	28
A.P.I. Grade D	.44	1.35	...	...	...	...	70,500	31.0	...	Normalized	28
Casing and Couplings											
Cromansil	.2	1.2	.5	...	...	Si 0.75	54,000	18.0	150		27
S.A.E. 6120	.18	1.2	...	...	...	V 0.1	50,000	18.0	...		27
Manganese molybdenum	.25	1.4	...	...	.2	...	70,000	17.0	...		6

*Minor elements are specified by Society of Automotive Engineers for similar steels. †Ends are oil-quenched and tempered to Brinell hardness of 280. ‡Modified analysis.

Carter Coordinate Survey System Used in Kentucky

IT may have been good enough for the pioneers, but the survey system and the method of locating property lines, and more particularly oil wells and drilling tests, has been remodeled by the oil companies operating in Kentucky. While the legal description still says that the Jones farm is bounded by a certain creek and a few poorly designated trees, the oil companies are locating wells by a system resembling the section-township-range method common to other states. The original survey designated property lines according to local features, and nearly all farms in the area have irregular boundaries.

Mapping and correlation of formations in various wells were practically impossible under the old system. The fact that the well was located so many paces from the barn on the Jones farm meant very little to the map maker when he couldn't locate the farm, much less the barn. Descriptions accurately locating the well were too lengthy if they were to be accurate.

Topographic maps published by the U. S. Geological Survey and the Kentucky State Geological Survey have long been printed in approximately square sections 15′ of a degree in length and width. One of the major companies in the area (Carter Oil Co.) began using this as a base for the location of their own and other wells. By dividing each 5′ rectangle into 25 parts, they were able to locate the wells by degrees and minutes.

To further simplify well locations, they set up an arbitrary system with zero located at 36° 30′ N. and 89° 30′ W. Going northward they designated the 5′ divisions with letters, and going eastward the 5′ divisions were numbered. This made rectangular-shaped "townships" containing approximately 25 sq. miles. These were then divided into 25 equal parts and numbered, beginning in the upper right corner of the "township" and ending in the lower left corner. The mile divisions, the same as the regular sections, can be broken down readily into one sixty-fourths, approximately 10 acres. The Corydon pool in Henderson County, for example, falls in Sections 18 and 19-P-22. This method is called the "Carter coordinate system" or the Laughlin-Simmons survey system.

In practice, the well is spotted on the topographic survey sheet, measurements from the boundaries taken and then transferred to the work maps. If the well is staked and the surveyors wish to locate it, the topographic map is used for reference and measurements made to the nearest boundary. The well is thus located as 1,000 ft. from the north line and 1,500 ft. from the east line of Q-30, and therefore is in Section 1 of that township.

Another peculiarity in the designation of wells and tests was the method of applying the farm name as the principal identification medium. Instead of the well being known as the Deep Hole Oil Co.'s No. 1 Jones and properly located, it was simply the No. 1 Jones; the second well drilled on the farm became the No. 2 Jones, regardless of whether it was drilled by a different oil company or not.

If prospectors in the area had been content with drilling one dry hole to the farm, this wouldn't have been so bad. But one operator would get a slight show of oil and then abandon the lease; several years later another operator would arrive and, hearing of the show, move some distance away and drill another hole, which would be the No. 2 Jones. The only record of the location of these holes is in the mind of the property owners.

Much information will be available to the oil companies when the wells are properly located and their logs correlated. However, the location of these old wells is very difficult, and it will be some time before this work is completed.

The location of future wells, while it will never be as easy as it is in the conventional areas, will be facilitated and map makers at a distance will not be handicapped by lack of knowledge of the trees and barns on the Jones farm.

BOOKS

FINDING AND PRODUCING OIL. 338 pp. New York: American Petroleum Institute. $3 (foreign countries, $3.50).

Here, in concentrated form, is a manual of information on the business of finding and producing oil, including a digest of laws pertaining thereto, and a list of persons, firms, or corporations engaged in the business. It is an effort to outline the present state of the art and to indicate the various services and facilities that are available to those now engaged or desiring to engage in the oil and gas industry.

The works starts out with chapters, or sections, devoted to geological methods of oil exploration, geophysical methods of exploration, methods of drilling, sampling, coring and bore-hole surveying, and then delves into the subject of production methods, laws, and miscellaneous topics. The book should be valuable to those who have no knowledge of the industry and who want to learn something about it quickly.

TECHNOLOGY, EMPLOYMENT, AND OUTPUT PER MAN IN PETROLEUM AND NATURAL-GAS PRODUCTION. By O. E. Kiessling, H. O. Rogers, G. R. Hopkins, N. Yaworski, R. L. Kiessling, J. Brian Eby, Lew Swerkrop, J. S. Ross, R. E. Heithecker, W. B. Berwald, Andrew M. Rowley, M. A. Schellhardt, Richard Sneddon, Boyd Guthrie, Herbert Schimmel, and J. C. Albright. 349 pp. Works Progress Administration.

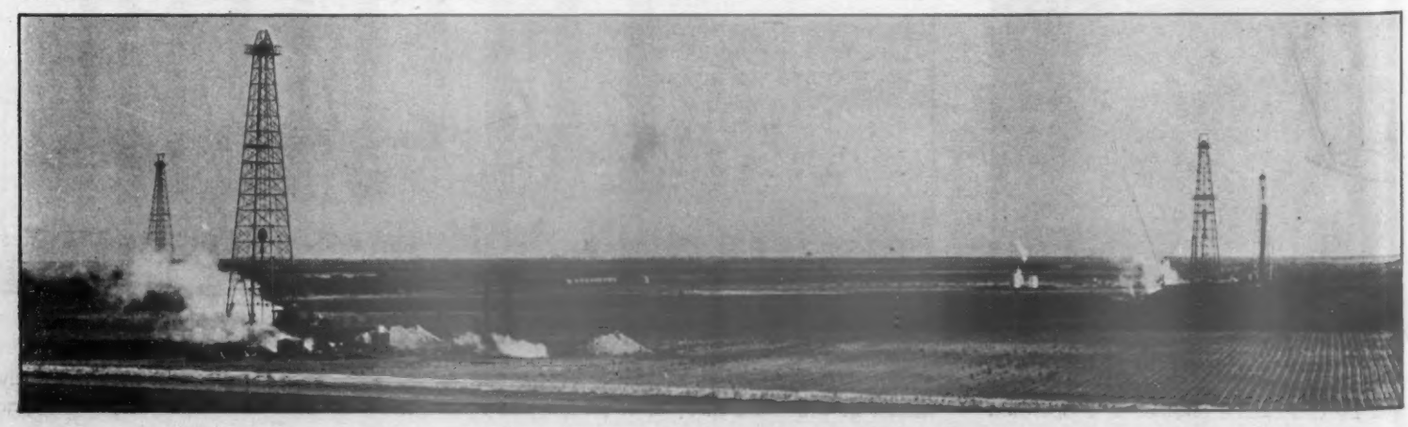
This multiauthored volume attempts an answer to the questions: Has the growth of employment in the industry been permanently arrested? and What will be the net probable employment opportunities in the future? Major emphasis is given to the primary producing activities, while other branches are given relatively less attention, principally because data are less comprehensive. Marketing is considered only briefly in presenting a perspective of overall activity and employment. In general the inquiry is confined to an analysis of the relation between production and employment. Technology and changing physical conditions of operation are emphasized because of their importance to production, output per man, and the number of jobs available. The book, which is a research project of the W.P.A., is available without charge from the Bureau of Mines in Washington, D. C.

A.S.T.M. STANDARDS ON PETROLEUM PRODUCTS AND LUBRICANTS. 336 pp. Philadelphia: American Society for Testing Materials. $2.

Sixty-two standardized methods of test, ten specifications, and two lists of definitions and terms comprise this latest edition of an annually published work. The new edition includes several new standards published for the first time covering carbon residue, bum stability of gasoline, determination of tetraethyl lead in gasoline, consolidated specifications covering A.S.T.M. thermometers, and others.

RECENT MARINE SEDIMENTS. A symposium, edited by Parker D. Trask. 688 pp. Tulsa: American Association of Petroleum Geologists. $5 ($4 to A.A.P.G. members and associates).

This book, published by the American Association of Petroleum Geologists, is of interest not only to petroleum geologists who are doing research work on the origin of oil and source sediments, but is of value to oceanographers, physiographers, physicists, and general scientists. A symposium, it was prepared under the direction of a subcommittee of the Committee on Sedimentation of the Division of Geology and Geography of the National Research Council, Washington. The volume contains thirty-odd papers, divided into seven parts, such as: Transportation, Relation of Oceanography to Sedimentation, Deposits Associated With Strand Lime, Near-Shore Deposits, Pelagic Deposits, Special Features of Sediments and Methods of Study.



Turkey Creek field, Nueces County, lower Texas Gulf Coast

METALS in DRILLING

By W. L. NELSON

ALTHOUGH the field service that is encountered by drill collars, tool joints, drill pipe and casing is not as severe as that generally encountered by gears, rock-bit cutters, etc., a failure of the drill string is just as disastrous from the standpoint of cost as any other failure in the hole. Furthermore, the tonnage of the equipment here discussed is enormous and therefore the manufacturer and operator can save large sums of money by eliminating even small defects. At least 31 inexpensive low-alloy steels are available for high-duty constructional steels, and many of these could be, and may have been, utilized for the equipment discussed in this article, particularly for drill pipe, casing and couplings. However, the literature fails to disclose that many of these low-alloy steels have been utilized for drilling equipment.[27]

Manufacturers have found it advisable to inspect carefully this important equipment. The threads are examined for imperfections, the taper of the threads is measured by an instrument and exposed threads are often guarded during shipment by special caps. One manufacturer examines the upset end of his drill pipe by means of the magnaflux method by which the piece is sprinkled with powdered iron and exposed to a strong electrical current. The iron particles arrange themselves in a unique and unmistakable pattern at flaws or cracks. The same manufacturer has devised a long telescope which can be inserted into the tube for examination of the entire inner wall.

All of this equipment involves pipe threads, and hence galling becomes an important difficulty. Trouble with galling may be obviated to some extent by careful inspection and control during the drilling of the well. Joints should be made up tightly so that the joint does not loosen when parts of the string are put in tension. Ragged threads also contribute to galling, and certainly the inclusion of sand, scale, etc., in the pipe joint is not good practice. Much trouble can be avoided by simply wiping and oiling the joints. The manufacturer can also assist by avoiding decarburization. During heating of the steel, the carbon content at the surface may become low by migration of the carbon and subsequent burning of it at the surface. This results in a spot of soft steel, which is said to cold-weld itself to other metal surfaces when held together by tremendous force. Some manufacturers avoid decarburization by luting the threads with a boric acid paste prior to heating operations, and others accomplish the same results by controlling the composition of the gases in their heating furnaces. Still other manufacturers galvanize or zinc plate the threaded joints and others remove the small burrs that result from pipe threading by sand blasting.

DRILLING STRING AND CASING

Ninth of a series devoted to the metallic materials that are used in drilling wells. Other articles have dealt with portable servicing equipment, slush pumps, rotary chain, rotary table, hoists, engine castings, pulley blocks, and bits. Materials that are discussed were described in published statements of metal manufacturers, fabricators and field men. In this particular article many materials will be neglected because a vast number of somewhat similar steels can be used—and hence only representative ones are given. In future articles, the materials used throughout the entire oil industry in producing oil, refineries, transportation, gasoline plants and bulk stations will be presented.

The entire drill stem is subject to combined twisting, bending, tension and even compression at the bottom of the hole. During drilling the drill plug actually twists and untwists as it encounters strata of differing hardness or as the load on the bit is altered by lifting the string. These conditions combine to result in fatigue of the metal and the prevalence of notches such as those encountered at threads, upsets, or other abrupt changes in dimension, present many opportunities for fatigue cracks or fatigue failures. Even such small notches as the scratches left by machining or the identification numbers that are often cold-stamped on each piece of equipment may cause fatigue failure. The end joints of the string are particularly susceptible to failure by fatigue because of the continued flexing or bending which occurs most actively at the ends of the string. In general, it may be said that failure by repeated applications of stress (fatigue) will occur in most materials at a maximum stress that is less than half of the tensile strength of the material. In the presence of corrosive agents, of which even drilling mud or soil waters are examples, failure by fatigue may occur at stresses that are less than one-fourth of the tensile strength. Failure by fatigue appears to occur most actively at the notched sections mentioned above and hence great care is exercised by manufacturers and design engineers to avoid notches, scratches, etc., and if an abrupt change in dimension cannot be avoided the equipment is designed with a generous fillet. This general type of design has been followed until it is now common practice to use upset joints which are attached to the drill pipe, collars, joints, etc., by forging.

The pieces of equipment are so large that they cannot be heat-treated in ordinary furnaces or shops. The normal practice is to cool in air (normalize) and then reheat or temper to the minimum allowable ductility. The difficulties in handling such large pieces (some drill collars exceed 50 ft. in length) has made some manufacturers feel that the chances of a poor heat treatment are so great that heat treatments should not be attempted at all. The difficulty has been met in some degree by normalizing and drawing the entire piece, then oil quenching and drawing the ends. All of the difficulty in heat treating is ameliorated by the use of alloy steels. Carbon steels are extremely sensitive to quenching and drawing, whereas slight differences in the temperatures and rates of cooling make little difference when alloy steels are being heat-treated. Some enterprising manufacturers have devised special heat-treating furnaces and carriages for handling the stock, by which the long pieces are pushed progressively through the heating furnace, through a quenching zone, and through a drawing furnace. With such heat-treating furnaces it is possible to quench and draw the entire piece, which results in a uniformity of material which cannot be gained by other methods.

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TUBULAR DRILLING EQUIPMENT
Drill Collars and Tool Joints

Steel—	Approximate composition, per cent* C	Mn	Cr	Ni	Mo	Others	Approx. phys. properties Y.P.	Elong.	Brinell	Heat treatment	Reference
S.A.E. 3140	.4	.75	.6	1.25	...	...	125,000	16.5	300	O.Q. 1,500—D. 950	26
S.A.E. X3140	.4	.75	.75	1.25	...	...	108,000	21.5	300	Oil quenched and tempered	15-21
S.A.E. X3140†	.4	.75	.75	1.25	...	...	80,000	21.5	212	Normalized and drawn†	15
S.A.E. 4140	.42	.74	1.10	...	.2	...	130,000	17.5	300	O.Q. 1,560—D. 1,100	11-25
S.A.E. 4140‡	.34	.66	1.06	...	.3	...	132,000	18.0	302	O.Q. 1,550—D. 1,110	25
S.A.E. 6140	.4	.75	1.0	...	...	V 0.18	135,000	17.0	300	O.Q. 1,600—D. 1,050	22
Chrome molybdenum vanadium	.4	.65	1.25	...	.35	V 0.18	151,000	16.5	...	Normalized and drawn	22
S.A.E. 4340	.4	.65	.65	1.75	.35	...	130,000	17.0	310	O.Q. 1,525—D. 1,000	6
Manganese	.27	2.54	...	...	...	...	104,000	15.0	...	Heat treated	28
Drill Pipe											
Managenes molybdenum	.45	1.5	...	...	.2	0.25 Si max.	95,000	20.0	210	Normalized and drawn	11
Manganese vanadium	.5	1.6	...	...	...	V 0.1	95,000	20.0	210		22
Manganese vanadium	.38	1.75	(Si 0.6)	...	...	V 0.1	80,000	20.0	...		22
A.P.I. Grade A	.12	.43	...	...	...	...	40,000	43.0	...	Normalized	28
A.P.I. Grade B	.23	.76	...	...	...	...	49,000	39.0	...	Normalized	28
A.P.I. Grade C	.41	.77	...	...	...	...	57,500	30.0	...	Normalized	28
A.P.I. Grade D	.44	1.35	...	...	...	...	70,500	31.0	...	Normalized	28
Casing and Couplings											
Cromansil	.2	1.2	.5	...	...	Si 0.75	54,000	18.0	150		27
S.A.E. 6120	.18	1.2	...	...	...	V 0.1	50,000	18.0	...		27
Manganese molybdenum	.25	1.4	...	...	.2	...	70,000	17.0	...		6

*Minor elements are specified by Society of Automotive Engineers for similar steels. †Ends are oil-quenched and tempered to Brinell hardness of 280. ‡Modified analysis.

Thermal Alkylation and Neohexane*

By G. G. OBERFELL
and F. E. FREY
Phillips Petroleum Co.

PART 2—Conclusion

IN the synthesis of an individual hydrocarbon such as neohexane by the thermal alkylation process the olefin and paraffin feed stocks must be of rather high purity, the conversion per pass must be relatively low, and elaborate refining is needed for the finished products. In the manufacture of motor fuel by thermal alkylation an entirely different set of requirements prevails. In this broader and important application a considerably higher conversion per pass may be used, which permits greater output from the plant and produces an alkylate of lower volatility, such as is shown in Table 1, experiments 2 and 5.

The products do not reflect the reactants used to so great a degree, but light gas and tar formation remain low with consequent high gasoline yields relative to olefins and paraffins consumed. In combination with low-pressure cracking as a source of olefins, thermal alkylation constitutes a variant on the familiar two-stage principle, characterized by high yields and much flexibility in the use of feed stock. Ethane, propane, and butane occur together in natural gas or refinery gas and where their value as gaseous fuel is not too high, they can be exhaustively recovered and converted to produce, in such a situation, the maximum volume of motor fuel by polymerization, by virtue of the nonselectivity of thermal alkylation with respect to conversion stock, without the addition of other conversion steps to the two-step process. Since ethane and also propane are ordinarily abundant as compared to butane in such situations, propane must be utilized in the alkylation step to make the volume of propane-butane more or less commensurate with the olefin derived from cracking ethane and the remainder of the propane. Under such circumstances the process is flexible with respect to reduction in available volume of butane. On the other hand, light straightrun or natural gasoline hydrocarbons in the normally liquid range can be included to effect reduction in volatility when desired.

Finally, the alkylate resulting from such operations, being intended for motor-fuel blending requires much less fractionation and refining.

Engineering and cost studies indicate that thermal alkylation in general compares favorably with thermal polymerization and is very definitely in the economic range for motor fuel entirely apart from the more dramatic role of synthesizing hydrocarbons of high purity.

A.P.I. **— Presented before annual meeting, Chicago, Ill., November 13-17, 1939**

Installing Process

By January 1940 Phillips Petroleum Co. will have in operation a plant for producing neohexane, a new aviation-fuel ingredient, by the reaction of ethylene with isobutane by thermal alkylation. The process consists of a cracking step wherein an ethane-propane mixture is cracked to ethylene at low pressure and an alkylation step wherein the ethylene is reacted with isobutane under high pressure. The process is diagrammatically illustrated in Fig. 1, which applies directly, however, to the pilot plant studies described below.

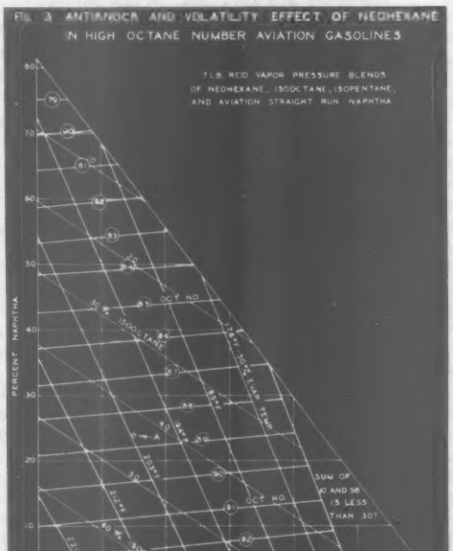

Fig. 3—Antiknock and volatility effect of neohexane in high octane number aviation gasolines

The thermal alkylation operation has been studied in a pilot plant wherein an ethane-propane mixture is cracked at about 1425° F. and a pressure a few pounds above atmospheric for optimum ethylene formation. The gaseous products are cooled, compressed, scrubbed with isobutane to remove light oils formed in cracking, and contacted with isobutane which absorbs the ethylene. The ethylene-isobutane mixture is pumped to a manifold which distributes it among 10 inlets situated along a tube coil which constitutes the reaction zone through which a separate stream of isobutane of greater volume is continuously pumped. A preheat coil imparts the desired reaction temperature, about 950° F., to the isobutane stream prior to its entry into the reaction zone, and this temperature, within the reaction zone, is maintained by a flow of hot combustion gases. Conversion pressures are in the range 3,000-5,000 lb. per sq. in. The liquid products are separated from the reactor effluent by conventional fractionation.

In addition to neohexane, other motor-fuel hydrocarbons are produced, mainly through secondary reactions, and lying almost entirely above the neohexane in boiling range. Owing to the low maintained concentration of ethylene in the reaction zone, the formation of tar, usual in thermal polymerization, is retarded and the total alkylate is yellow in color, containing little material above the motor-fuel range.

In Table 3 inspection data are shown for the total polymer (Sample A) after debutanizing and redistilling. After removing the neohexane from Sample A by fractionation and combining the lighter and heavier material, Sample B is obtained.

Sample C represents the product obtained by blending the neohexane fraction with a fraction including all the C_7 and C_8 material in the alkylate A, acid treated to eliminate unsaturates and redistilled. Such a blend is of interest in that it represents a 100-octane fuel of paraffinic type containing no isooctane. It meets specifications for aviation fuel in all respects except that the sum of the 10 + 50 A.S.T.M. distillation points is a little below the specified 307° F. minimum. Sample D represents a blend of slightly lower neohexane content which meets the sum specification as well.

Neohexane

Neohexane is one of the five possible isomeric forms of hexane, all of which have been prepared synthetically. The structural formulae and certain

TABLE 3—INSPECTION DATA ON PRODUCTS FROM PILOT PLANT ALKYLATION OF ISOBUTANE BY ETHYLENE

Sample: Description:	A Debutanized alkylate	B A, minus neohexane content	C* Neohexane volatility	D† Plus lower fraction
Octane number (A.S.T.M.)	82.5	78.4	100.2	99.6
A.P.I. gravity at 60° F.	73.2	67.7	76.6	75.6
Reid vapor pressure, lb. per sq. in.	7.3	6.9	6.9	6.4
A.S.T.M. distillation:				
Per cent evap. at °F.:				
First drop	118	116	128	129
5	129	136	134	139
10	136	149	139	146
20	142	158	143	150
30	146	166	146	154
40	151	175	151	160
50	157	186	156	164
60	166	199	166	176
70	180	215	179	193
80	206	236	200	209
90	268	273	217	221
95	310	325	222	230
End point	370	399	258	282
Sum of 10 + 50 per cent points	...	...	295	310

*A blend of 40 volumes of acid-treated C_7-C_8 fraction (165°-243° F.) with 60 volumes of neohexane fraction. Octane rating is by the A.S.T.M. method with 3 cc. TE per gallon.
†A blend of 50 volumes of acid-treated C_7-C_8 fraction (165°-243° F.) with 50 volumes of neohexane fraction. Octane rating is by the Army method with 3 cc. TEL per gallon.

*"The prefix neo- indicates the presence of a C attached by all four valences to other C atoms." (F. C. Whitmore. Organic Chemistry, Van Nostrand Co., New York. 1937. p. 21.)

properties are shown in Fig. 2. All but neohexane have been known for some years to occur in natural gasoline and only recently, in a West Virginia natural, was neohexane found.[10] An inspection of Fig. 2 shows that only two of the hexanes, neohexane and 2,3-dimethylbutane, are highly branched in structure and possess high octane number, about 95 for each. As aviation fuels or fuel ingredients, these hydrocarbons are in the antiknock range of synthetic isooctane, but by reason of their higher volatility can be used to provide volatility flexibility in blends of high antiknock rating. Isoparaffins as a class are resistant to oxidation effects and consequently are advantageous under conditions requiring long intervals of storage.

Neohexane is the most volatile of the hexanes, and the boiling point, as it happens, is separated by considerable intervals from adjacent paraffins. This makes its manufacture in concentrated form by fractional distillation easy as will be evident from the following boiling-point tabulation (Table 4):

TABLE 4—BOILING POINTS

	°F.	°C.
Isopentane	82.3	(27.95)
n-Pentane	96.8	(36.0)
Neohexane	121.5	(49.7)
2,3-Dimethylbutane	136.6	(58.1)
2-Methyl pentane	140.4	(60.2)
3-Methyl pentane	145.8	(63.2)
n-Heptane	155.8	(68.8)

There have been quite a few careful determinations of the physical properties of neohexane, which are in quite good agreement. The physical properties are listed in Table 5.

TABLE 5—PROPERTIES OF NEOHEXANE

Reid vapor pressure, lb.	9.5
A.P.I. gravity	84.9
A.S.T.M. octane number	94
Boiling point (49.7° C.), °F.	121.5
Specific gravity (20°/4° C.)	0.6494
Refractive index n_D20° C.	1.36887
Freezing point (—98.2° C.), °F.	—144.8

Antiknock Properties

From an antiknock viewpoint, a most important property of neohexane is its exceptionally high tetraethyl lead susceptibility. This quality is best demonstrated in Table 6, which shows the lead susceptibility of neohexane compared to that of a blend of the primary standards, isooctane and normal heptane, of the same unleaded octane number as neohexane.

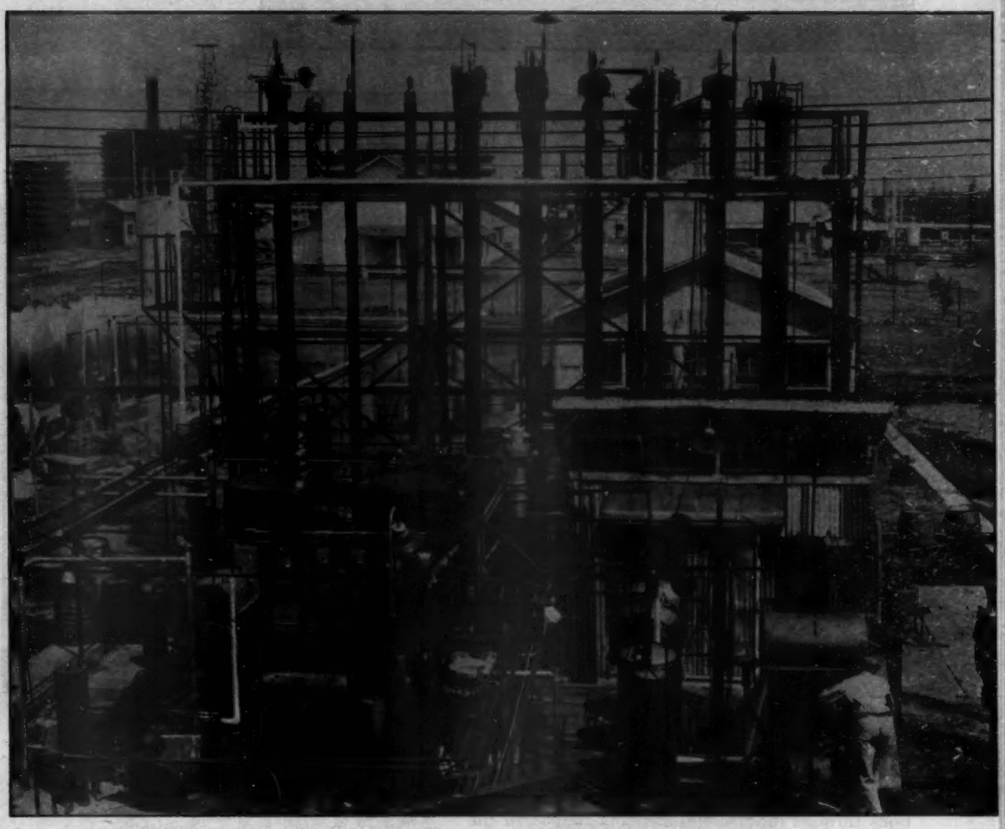

Fig. 4—Neohexane pilot plant

curing this information was the A.S.T.M. method with the following modifications: (1) removal of the throttle plate; (2) the use of a 10/16-in. venturi rather than the standard 9/16-in. venturi, and (3) the spark advance held constant at 25° B.T.D.C.

The superiority of neohexane to C.P. isooctane at comparatively high TEL concentrations is well demonstrated in the above tabulation. The blending effect of neohexane is shown in the third column of the table. Here it is shown that the high antiknock value of leaded neohexane can be fully realized in blends of this material with isooctane.

From a consideration of the volatility, antiknock and TEL response properties of neohexane, it is apparent that the potential value of this new synthetic hydrocarbon lies chiefly in its use in raising the maximum attainable octane number of either ethylized or unethylized aviation fuels while at the same time maintaining fuel characteristics of balanced volatility. This is particularly true since it is a fact that synthetic isooctane has an average boiling point (200°-240° F.) considerably in excess of the average boiling point (180°-210° F.) of the conventional aviation gasolines. From this consideration it is obvious that to obtain full advantage of the superior antiknock properties of synthetic isooctane it is desirable to have a blending material of considerably lower average boiling point but with superior antiknock properties. Neohexane with an average boiling point of 121° F. and an octane number of 94 fills this need.

Table 8 presents the A.S.T.M. distillation data for a series of blends of neohexane, commercial isooctane, aviation straightrun naphtha, and isopentane. The characteristics of the base materials are presented in the table. The commercial isooctane was composed largely of the synthetic higher boiling isooctanes. The aviation straightrun naphtha was a depentanized straightrun aviation gasoline of the usual conventional volatility characteristics. The neohexane and isopentane were of high purity.

In these blending experiments the naphtha and the isooctane were "isopentanized" and the isooctane was "neohexanized" to 5.5, 7.0 and 8.5 lb., giving three base materials in each vapor-pressure bracket for cross blending. The three blends in each vapor-pressure bracket were blended in pairs with each other in one-third and two-thirds proportions. The composition, A.S.T.M. distillation data, and vapor-pressure data are presented in Table 8.

In addition, octane numbers, calculated arithmetically from the composition and the octane numbers assumed as representative for the basic ingredients, are shown in the table. These octane numbers are, of course, for illustrative purposes only, but will permit the establishment of a semiquantitative relationship between volatility and antiknock properties. In connection with these antiknock relationships it should be mentioned that the aviation naphthas quite generally have basic lead susceptibilities inferior to those possessed by isopentane, neohexane and commercial isooctane. Since the octane numbers of these blends are almost directly related to the percentage of naphtha in them—the higher the percentage the lower the octane number—it follows that the basic TEL susceptibility of the blends will be higher, the higher the octane number of the blend.

Table 8 is divided into four sections, the top section of four items dealing with the four basic ingredients. The remaining three sections deal with blends in the three vapor-pressure brackets, 5.5, 7.0, and 8.5 lb., respectively. In each of the vapor-pressure brackets the blends are arranged in order of decreasing naphtha content. For all but the highest naphtha concentration in each vapor-pressure bracket there are examples of blending with and without neohexane.

As would be expected from the inspection data

TABLE 6—LEAD SUSCEPTIBILITY OF NEOHEXANE AND ISOOCTANE

	Octane number (A.S.T.M. Method)	TEL requirement to equal C.P. isooctane plus indicated TEL (A.S.T.M. method)			
		0.0 cc.	1.0 cc.	2.0 cc.	3.0 cc.
Neohexane (99 per cent pure)	94	0.25	1.35	2.25	3.0
Isooctane-normal heptane blend	94	0.30	2.90	4.85	6.35

It is of interest to note that at a TEL concentration of 3.0 cc. per gallon, neohexane is equal in antiknock value to C.P. isooctane.

In view of the inherent limitations of the prevailing standard and official knock testing methods for testing fuels much in excess of 100-octane number, a good portion of the fundamental studies on the antiknock properties of neohexane have been conducted, in our laboratories, on improved test methods. Perhaps the most interesting data of this nature obtained thus far are shown in Table 7. The antiknock test method used for se-

TABLE 7—KNOCK TEST BY MODIFIED A.S.T.M. METHOD

Oct. No.*	Cc. TEL per gallon C.P. isooctane	TEL required to equal leaded isooctane: Neohexane	50% neohexane + 50% C.P. isooctane	39% isopentane + 61% C.P. isooctane
100	0.0	0.25	0.1	0.25
109.1	1.0	1.3	1.1	1.5
112.1	2.0	2.2	2.1	2.6
114.1	3.0	2.9	2.9	3.75
118.7	6.0	4.5	4.9	7.45
..	9.7	6.0	...	...

*Reference 10.

Fig. 5—Refinery of Phillips Petroleum Co., Borger, Tex.

on the four blending ingredients, the blends meet conventional aviation gasoline volatility specifications through most of the blending range. All the blends meet the conventional 10 and 90 per cent specifications, while in certain very limited blending proportions the blends have too little or too much volatility to meet the conventional volatility specifications.

The 7.0-lb. blends are, of course, of most immediate significance, although it is of interest to know that some of the 8.5-lb. blends have higher average boiling points than some of the 5.5-lb. blends. With the data pertaining to the 7.0-lb. blends as a basis, Fig. 3 has been prepared. The percentages of naphtha and of neohexane are the co-ordinates in the figure. In light lines are shown the percentages of isooctane. The percentage of isopentane at any point in the diagram is, of course, the difference needed to total 100 per cent. All points in the triangular diagram represent a total composition of 100 per cent. Thus the upper apex of the triangle is a blend containing 81.5 per cent naphtha and 18.5 per cent isopentane, the lower left apex is a blend containing 74.5 per cent isooctane and 25.5 per cent of isopentane, and the lower right apex is a blend containing 63 per cent neohexane and 37 per cent isooctane. The vertical axis represents the condition of conventional blending to high octane numbers using isooctane, aviation naphtha, and isopentane. The horizontal axis represents blends using neohexane, isopentane and isooctane but containing none of the low-octane number aviation naphtha. All points in the body of the diagram represent combinations of these two blending practices, using all four ingredients.

Sloping sharply downward is a family of curves (dark lines) showing the 50 per cent temperature of the blends. The extreme right line parallel to the 50 per cent temperature lines represents the dividing line between blends with more and less than 307° F. for the sums of the 10 and 50 per cent temperatures; all blends to the left of the line having sums of more than 307° F. Sloping slightly upward from left to right is another family of curves (dark lines) showing the unleaded octane numbers of the blends.

As an example of the use of Fig. 3, the point designated as *A* has the following composition:

Per cent neohexane—15.0 (horizontal axis)
Per cent naphtha—25.0 (vertical axis)
Per cent isooctane—43.3 (interpolation between 40 and 50 lines)
Per cent isopentane—16.7 (by difference)

and the following definite characteristics:

Unleaded octane number—88.4 (interpolation between 88 and 89 lines)
50 per cent evaporation temperature—202° F. (interpolation between 194 and 203 lines)
Sum of 10 and 50 per cent temperatures—More than 307° F. (left of 307 boundary)
Reid vapor pressure—7.0 lb. (basic premise)

and the following approximate characteristics from the data on 7.0-lb. blends in Table 8:

10 per cent evparorated temperature—134°-139° F.
90 per cent evaporated temperature—241°-256° F.

The figure graphically shows the advantage of neohexane in making it possible to have higher octane-number gasolines with balanced volatility. Thus, for any given midpoint limitation it is possible to make finished gasolines of considerably higher octane numbers when neohexane is used to the maximum extent. For a midpoint maximum of 212° F., the maximum attainable clear octane number without neohexane is 86.2, while replacing the naphtha with a mixture of neohexane and additional isooctane makes it possible to get to 93.3 octane number, a gain of 7.1 octane numbers. Under similar conditions, but for a midpoint maximum of 203° F., the gain is 10.6 octane numbers, from 82.8 to 93.4. For higher and lower midpoint maxima the gains are less and more, respectively. The improved basic TEL susceptibility of these higher octane-number gasolines, previously mentioned, is of considerable value in the case of ethylized gasolines.

Vaporization Characteristics

From studies of the literature pertaining to the vaporization characteristics in actual engine induction systems and from a considerable experience in blending materials of widely divergent average boiling points there can be little question as to the practical vaporization characteristics of the blends shown in Table 8 and Fig. 3. However, the question will naturally arise in many minds as to the practical vaporization characteristics of such fuels as are represented by the horizontal axis of Fig. 3. These fuels are essentially three component mixtures with considerable differences among the boiling points of the individual components. As is shown in Fig. 3, the A.S.T.M. distillation points in almost all the blending range are well within conventional limits. But the question is whether the A.S.T.M. distillation data can be expected to give the established relationship to actual vaporization in an engine manifold in the case of such three component mixtures. In this connection it is to be recalled that much work[1,2,3] has been done relating the laboratory Sligh air-equilibrium distillation data to A.S.T.M. distillation data and to engine performance. In particular, Brown[3] studied motor fuels having far wider variations in the A.S.T.M. distillation curves than are encountered in isopentane-neohexane-isooctane blends. However, it has seemed desirable to conduct both Sligh air-equilibrium tests and engine tests on the neohexane blends to determine if there are any unexpected vaporization characteristics. This work is now in progress, but is too incomplete to be discussed here in detail except to state that thus far there has been a reasonably good agreement between the actually determined air-equilibrium distillation curves and the air-equilibrium distillation curves that would have been predicted from the relationships established by the earlier investigators. This fact would

TABLE 8—INSPECTION DATA ON NEOHEXANE BLENDS

Percentage composition				A.S.T.M. distillation data Temp. (°F.) at indicated per cent evaporated						Octane	R.V.P.
Naphtha	Isooctane	Neohexane	Isopentane	10	30	50	70	90	10+50	No.*	(lb.)
100.0	...	...	...	176	188	202	219	247	378	†75.0	3.65
...	100.0	...	...	225	230	234	240	263	459	†94.0	1.40
...	...	100.0	...	120	120	121	121	122	241	†94.0	9.85
...	...	...	100.0	82	82	82	82	82	164	†90.0	21.00
90.5	...	...	9.5	155	179	197	215	243	352	76.4	
60.3	27.2	...	12.5	157	187	209	225	250	366	82.0	
60.3	18.4	15.0	6.3	154	174	196	219	247	350	82.3	
30.2	54.3	...	15.5	157	197	220	234	256	377	87.5	
30.2	36.7	30.0	3.1	151	166	193	224	248	344	88.1	5.5
..	81.5	..	18.5	158	210	230	238	258	388	93.3	
...	72.7	15.0	12.3	155	193	224	236	257	379	93.5	
...	63.8	30.0	6.2	152	175	210	234	254	362	93.8	
...	35.0	45.0	...	148	162	190	227	251	338	94.0	
81.5	...	...	18.5	139	162	189	212	241	328	77.8	
54.4	24.8	...	20.8	139	170	203	223	247	342	82.8	
54.4	12.3	21.0	12.3	139	156	179	212	242	318	83.2	
27.2	49.7	..	23.1	138	178	216	232	253	354	87.8	
27.2	24.7	42.0	6.1	137	149	165	204	243	302	88.6	7.0
...	74.5	..	25.5	138	191	226	237	256	364	93.0	
...	62.0	21.0	17.0	137	166	209	234	253	346	93.3	
...	49.5	42.0	8.5	137	152	181	225	250	318	93.7	
...	37.0	63.0	...	134	141	155	191	245	289	94.0	
72.5	...	...	27.5	127	148	177	207	237	304	79.1	
48.3	22.7	...	29.0	128	153	193	220	247	321	83.7	
48.3	6.3	27.0	18.4	127	140	160	194	237	287	84.1	
24.2	45.3	..	30.5	128	161	209	229	252	337	88.2	
24.2	12.7	54.0	9.1	126	134	145	167	234	271	89.0	8.5
...	68.0	...	32.0	128	168	223	236	255	351	92.7	
...	51.7	27.0	21.3	127	146	181	227	250	308	93.1	
...	35.3	54.0	10.7	126	135	150	190	243	276	93.6	
...	19.0	81.0	...	126	130	135	147	224	261	94.0	

*Calculated arithmetically from octane numbers of ingredients. †Assumed as representative.

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indicate that the conventional volatility specifications will be applicable to even the three component blends.

Considering Table 8 and Fig. 3, blending ingredients were selected possessing the characteristics thought to be most representative of high-octane-number blending ingredients. Of the four ingredients, the neohexane and isopentane are least subject to variation in their characteristics. The isooctane may range in octane number from 90 to 98. The effect of the octane-number variation can be calculated as was done in the example given. In general, the effect will be to raise or lower the entire octane-number level as represented in Fig. 3 with very little effect on the differences in octane number. The blending naphthas are subject to octane-number variation and to a considerable range in volatility. However, since maximum neohexane will be of most usefulness in attaining the maximum octane numbers and since such blends will contain very little or no naphtha, the characteristics of the naphtha are of relatively little importance.

For every set of corresponding blending ingredients, a diagram similar to Fig. 3 can be prepared and in each case there will be a pronounced increase in the maximum octane number attainable for a given midpoint volatility when neohexane is used.

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SAFETY — When Drilling Deep Tests

DESPITE the increase in the work, men on deep tests are generally in less danger of injury than those on shallow tests because of safety appliances and practices in use. The accompanying photograph was snapped in the New Iberia, Louisiana, field and shows how the larger rigs used on deep tests are designed and equipped.

The longer period required to drill a deep test justifies more rigging-up time and generally these rigs are in excellent condition before the rathole is dug. In addition, the crew has time between trips to install special equipment which will make the work safer. Another important factor is the quality of the equipment used, the operators generally doing everything in their power to prevent the danger of blowouts, or loss of time through defective or inadequate equipment.

The derrick shown here is one of the newer 30-ft.-base structures and thus provides much more working room, preventing the crowding of the equipment and eliminating the risk of accident through having to work in close quarters. It is also capable of withstanding a load much in excess of the weight of pipe. The ladder is equipped with a landing platform at the first girt to prevent the derrick man from missing the last step; the landing platform also serves as a walkway from the side to the center of the derrick. The ladder from the floor to the first girt is placed at the corner to prevent its being damaged while equipment is being brought to the floor. The stairs from the ground to the derrick floor also have a hand rail to prevent a man's stumbling and falling.

The ramp used for dragging equipment to the floor has a long incline which will allow heavy machinery to be landed easily with the catline. To prevent cutting of the catline while landing machinery, the first girt has a 4-in. pipe over it; this at the same time reinforces the girt and prevents its being bent which would reduce the load strength of the derrick.

Partially obscured by the landing platform on the floor is a blowout preventer used while drilling before setting casing; a smaller blowout preventer has replaced it in the cellar. The blowout preventers close with steam or liquid pressure and can also be closed manually. In case the test starts gassing, the blowout preventer can be closed instantaneously. As wells in this particular area often use wire-line bits or wire-line core barrels, no float can be used in the drill stem and the kelly joint is therefore equipped with a stopcock which can be closed in case the well starts to blow out. This prevents excessive pressures being placed on the hose, mud lines, etc.

When no float is used trouble is generally experienced in making the pipe come dry while making a trip and mud may spray over the machinery and the floor. To prevent this nearly all rigs in the area are equipped with mud boxes which may be latched around the pipe to direct the mud into the cellar.

Handling of long strings of pipe cause the brake drums to become heated despite water cooling. To prevent excessive wear of the brake lining, a hydromatic brake, utilizing the resistance of fluid to movement, is used. This is an important safety device as it relieves the conventional brakes of much of their work and prevents brake failure and dropping of the pipe. It also reduces the strain on the driller and in case of a total brake failure keeps the pipe from falling fast enough to do any serious damage.

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QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Examination of Drill Cuttings for Favorable Indications of Oil

Drill cuttings treated with carbon tetrachloride turned brown. Would like to know if this kind of result would be enough proof that oil might be found in paying quantities? Should such formations be acidized or shot after the water is cased off?—C. H.

Oil, wax, asphalt, and other related substances, are soluble in several organic solvents including carbon tetrachloride. This is a heavy, specific gravity 1.595, colorless liquid which does not burn or form explosive mixtures with air at ordinary temperatures. It melts at —8° F. and boils at 169° F.

The proper method for testing well cuttings for indications of oil is to wash particles of sandstone or limestone in relatively a small volume of the solvent. If oil or bituminous material is present the carbon tetrachloride will be stained brown to black. If a large quantity of oil is present it will remain as a residue after removing the solvent by evaporation.

If oil were present in the sand it would not always be indicated in the water brought up in the bailer. There might be enough pressure and mud in the hole to prevent the escape of oil.

There are many factors that must be considered when making interpretations of oil indications and this matter should be submitted to the experts who have a full knowledge of local conditions and related information. This is also true when considering acidizing or the use of explosives.

Discontinuous Distillation and Its Application to Petroleum Refining

What is the meaning of discontinuous distillation? Is there any use made of this operation in the oil refineries, will you please give a description of it.—D. S. P.

A discontinuous distillation in its simplest form is one in which the liquid is subjected to an intermittent vaporization and condensation. The operation is conducted in batches, each charge being finished before another is started. The separation of the several fractions of crude oil, and the required rerunning, as conducted in the first petroleum refineries, may be considered to be of this type. There are numerous uses made of discontinuous distillation in other industries where small quantities must be processed and the distillate quite valuable. An example is the preparation of perfumes. The original equipment was a vessel, still, to hold the liquid while it was being heated and a worm, coil of pipe, covered with water as the condensing system.

The modern distillation unit includes a fractionating tower, placed between the still and the condensing coils, which is a device for conducting discontinuous distillation in a continuous system of processing petroleum. The function of a tower of this kind is to separate the less volatile from the more volatile particles of the vapors which flow from the still to enter near the bottom of the tower. The volatile fractions pass upward, through the liquid held on each plate, to the top and then to a condenser to be stored as a distillate. The service of a column of this sort is to act as a scrubber where the heavy ends, less volatile fractions, are separated from the ascending vapors by a descending liquid called the reflux. This countercurrent is a heat interchange which at any point in the tower is of approximately fixed composition. A fraction drawn off from a selected part of the tower may be considered to be a product obtained from a batch, as represented by the hot liquid in that part of the system.

The bubble-plate tower is the column most used in refineries today. A brief description is submitted to show its relation to the subject. The tower is fitted with a number of plates so designed that a layer of liquid will be held so as to make a seal on each plate. This is done by making a ring or dam around each hole in the plate so that the level of the liquid cannot fall below the top of the ring. Caps on multiple legs are set over each ring, the edges of the caps dip below the surface of the liquid, making a seal. The rising vapor must pass from the cover through the liquid in order to reach an outlet, this producing a scrubbing action because of the bubbling through the liquid. Each plate is supplied with an overflow or downcomer to conduct the excess liquid to the next lower plate, the discharge being beneath the surface of the liquid on the lower plate.

An extended description of the discontinuous distilling units is to be found in Robinson's Elements of Fractional Distillation.

Questions on Petroleum Technology may be sent to Dr. Charles K. Francis, The Oil and Gas Journal, Tulsa, Okla. When a copy of the answer is desired, postage should be included.

Physical and Chemical Laws and Principles Used in the Petroleum Industry

BERNOULLI'S THEOREM

Liquid-Flow Constant

At any point in the tube through which a liquid is flowing, the sum of the pressure energy, potential energy, and kinetic energy is a constant. If p is pressure; h, height above a reference plane; d, density of the liquid; v, velocity of flow, then

$$p + hdg + 1/2\,dv^2 = \text{constant}$$

The several conditions that determine whether a liquid passing through a pipe must follow streamline or turbulent flow, depends upon the viscosity of the liquid, pipe diameter and its internal condition. The critical velocity is the stage at which the flow passes from one condition to another. It decreases with lowering of viscosity and increase of pipe diameter.

Carbon Tetrachloride in Gasoline and Naphtha Against Fire Hazard

It has been suggested that addition of carbon tetrachloride to gasoline produces a mixture which will not ignite upon the introduction of a flame or spark. What percentage of this chemical should be used?—F. T.

The U. S. Bureau of Mines has issued a report covering the noninflammable mixtures of carbon tetrachloride (CCl_4) and gasoline. The original sources of the information are given below.

In the first table are shown the minimum percentages, by volume, of the liquid carbon tetrachloride required to render mixtures noninflammable: (*a*) When the blend is volatilized as completely as possible at room temperature, about 70° F. (*b*) When a flame is introduced to the free surface for an instant. (*c*) When a flame is presented momentarily to the exposed end of a wick dipping into the mixture.

MINIMUM QUANTITY OF CARBON TETRACHLORIDE IN NONINFLAMMABLE HYDROCARBON MIXTURES

	Percentages by volume		
Hydrocarbon—	Vaporized (*a*)	Free liquid surface (*b*)	Liquid on wick (*c*)
Pentane	67	80	70
Hexane	70	63.5	67
Heptane	70	50	58
Octane	67	50	67
Naphtha	70	50	58
Gasoline	68	50	58

The quantity of carbon tetrachloride that must be present in naphtha mixtures to render them reasonably safe from fire hazards varies with the type of naphtha. The properties of several are shown with the carbon tetrachloride relation in the next table.

QUANTITY OF CARBON TETRACHLORIDE TO BE ADDED TO NAPHTHA

Naphtha	Specific gravity	Distillation range °C.	Quantity CCl_4 required to render "reasonably safe from fire hazards" %
1	0.758	120 to above 180	30
2	0.725	80 to above 140	45
3	0.698	50 to above 115	50
4	0.681	50 to above 110	70

References: Coward and Jones, Limits of Inflammability of Gases and Vapors, Bureau of Mines, Bul. 279. Jones and Kennedy, Explosion and Fire Hazards of Hydrocarbon-Carbon Tetrachloride Mixtures, Inf. Cir. 6805, Bureau of Mines, 1934.

Bromine Apparently Not Well Adapted for Treating Gasoline

Would it be possible to use bromine for the treating of gasoline? What effect would it have?—T. F. J.

Bromine when applied to straightrun gasoline should have a reaction similar to that of chlorine, which has been used for the removal of objectionable odors, sulfur reduction and color improvement. The undesirable feature of chlorine treating is that hydrochloric acid is a product of the reaction and has a tendency to remain in the gasoline. When bromine is used the corresponding hydrobromic acid, also corrosive, would be formed.

Chlorine will produce explosive compounds with the hydrocarbons and it is thought that the bromine compounds produced would probably make more powerful explosives.

The cost of bromine would not encourage an extensive use as a treating agent.

FIELD OPERATIONS

Summarizing the Week's Developments

NEBRASKA—A 60-day test began at the Falls City discovery well, Richardson County, in an effort to qualify for the $15,000 state bonus. Operators were pumping about 6 hours a day but long enough each day to produce more than the required 50 bbl. per day. The wells in Richardson County were spudded.

MISSISSIPPI—The Tinsley field in Yazoo County was extended east and north but limited on the west by a dry hole. Fifty geophysical parties are working in Mississippi and western Alabama and lease prices have risen. The best well yet completed in the Tinsley field started last week at 55 bbl. per hour through a choke.

OKLAHOMA—Six operations were started in the Cement field, Caddo County, including three outposts in the extreme western extension area and a new test on the townsite, east side of the field. The Shawnee pool, Pottawatomie County, was extended northward. Southeast extension of the St. Louis field, Pottawatomie County, was further enlarged by the completion of a small producer. A gas pool was opened near Muskogee. Several new wildcats were started in the state.

KANSAS—The Balta pool, Russell County, was extended ¼ mile northward. A producer in the Bornholdt pool, McPherson County, made a potential of 3,033 bbl. to rate as the biggest well in that area. Extension of the Stoltenberg pool, Ellsworth County, ½ mile northward, was indicated. Two pool openers in Barton County were completed.

WEST TEXAS—In the Yates pool, in Pecos County, where the largest initial producing wells in the United States have been completed in times past, last week's reports show that Ohio Oil Co. completed No. 1-J Yates, which flowed 17,014 bbl. in 12 hours. The Johnson area in central Ector County, long considered favorable territory, but never much explored, is due for a drilling campaign.

CENTRAL TEXAS—The Ivy pool in Shackelford County has a new and deeper pay, the lower Palo Pinto lime, opened by a 239-bbl. well.

NORTH AND EAST TEXAS—New pools are indicated in Clay and Montague counties. The K.M.A. extension pool in Wilbarger County was extended 1 mile westward. For the first week in years no wells were completed in the East Texas field. Locations for two wells were made in the big field. Wildcats in Henderson and Hunt counties were dry.

SOUTHWEST TEXAS—Tertiary Wilcox production was found in the Bruni field in Webb County and the West Tulsita field in Bee County. The Wilcox well in the Bruni field, at 8,959 ft., is the deepest in the Laredo district.

LA-ARK-TEX—Gulf Coast Louisiana has two new pools in St. Martin and St. John the Baptist parishes and possibilities of another in La Fourche Parish. The St. Martin Parish pool opener was a 1,000-bbl. well. The important deep test in Lisbon field, North Louisiana, was still delayed by mechanical trouble.

ILLINOIS—The first Devonian-lime well in the Salem field in Marion County had its initial production of 1,500 bbl. per day nearly doubled when Kingwood Oil Co., the owner, acidized it with 500 gal. Sixty-six oil wells were completed in the state. Production increased 5,345 bbl. per day over the previous week's total.

Completions in All Fields

(Week Ended November 25, 1939)

	Oil	Gas	Dry	Total	1939 total comp. to date	1938 total comp. to date
N. Y., Pa., and W. Va.	62	17	7	86	2,945	3,222
Ohio	8	11	13	32	945	881
Indiana	3	2	3	8	306	121
Kentucky	8	2	6	16	639	813
Illinois	66	3	22	91	3,310	1,851
Michigan	16	1	11	28	1,309	851
Kansas	22	3	11	36	1,225	1,459
Oklahoma	27	2	14	43	1,580	1,541
Texas:						
North Central Texas	32	0	18	50	2,178	2,814
West Texas	38	0	2	40	1,698	1,776
Texas Panhandle	8	0	0	8	387	515
East Texas	0	0	0	0	356	1,620
East Central Texas	2	0	1	3	68	318
East Texas Border	1	1	0	2	247	123
Gulf Coast Texas	22	2	3	27	1,207	1,203
Southwest Texas	29	1	8	38	2,026	1,971
Total Texas	132	4	32	168	8,167	10,340
North Louisiana	4	2	4	10	469	575
Gulf Coast Louisiana	11	0	6	17	618	439
Total Louisiana	15	2	10	27	1,087	1,014
Arkansas	2	0	0	2	229	222
Montana	3	2	0	5	150	101
Wyoming	2	2	1	5	122	143
Colorado	0	0	0	0	13	13
New Mexico	19	0	0	19	541	506
Utah	0	0	0	0	0	3
California	21	0	2	23	846	1,163
Total United States	406	51	132	589	23,414	24,244
Total previous week	422	32	142	596		
Week ended Nov. 26, 1938	349	31	119	499		

Outstanding Fields—Highlights

(Week Ended November 25, 1939)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	30	41	7	5,590	1,183	32,098
Wasson-Bennett	22	79	12	9,744	523	26,476
Ector County	8	65	11	13,386	1,929	57,497
Pecos County	2	23	4	34,000	1,214	38,249
Jones County	6	17	1	962	584	8,900
East Texas	4	10	0	0	26,123	495,595
OKLAHOMA						
St. Louis	6	29	5	1,835	905	28,300
Cement	7	17	0	0	273	5,490
KANSAS						
Barton County	5	22	1	815	502	16,205
Ellis County	4	19	2	890	450	12,105
Rice County	5	30	5	1,379	1,394	31,720
Russell County	6	30	7	1,998	1,363	28,085
NEW MEXICO						
Lea County	8	59	12	6,823	2,308	99,380
Eddy County	11	58	5	1,791	460	12,650
LA-ARK-TEX						
Cotton Valley, La. (deep)	0	6	0	0	146	13,250
Magnolia, Ark.	0	6	0	0	77	17,570
MICHIGAN						
Freeman-Redding	4	12	0	0	126	15,120
Kent County	9	48	9	4,020	208	12,803
CALIFORNIA						
Montebello	4	32	9	3,556	309	28,950
ILLINOIS						
Salem	11	100	22	12,526	1,436	182,145
Louden	5	81	13	1,874	1,225	70,050
Other basin fields	26	260	21	4,429	1,870	71,020
Old fields						8,960

Illinois, Indiana and Kentucky

By STAFF CORRESPONDENT

Acidizing Increases Output of Kingwood Devonian Well

CENTRALIA, Ill., Nov. 27.—A 500-gal. acid treatment increased the production of Kingwood Oil Co.'s No. 18-A Shanafelt to 112 bbl. per hour flowing through a choke. The well is the first Devonian-lime producer in the Salem field in Marion County and caused a sensation when it came in in the previous week showing a production of 1,500 bbl. per day naturally. It flowed 2,688 bbl. in 24 hours after the acid treatment; and as it was producing through a choke on tubing, all kinds of estimates have been made on its open-flow potential, some of the guesses being as high as 10,000 bbl. per day. The record big producer in the state has been W. C. McBride, Inc.'s former gusher on the Lee lease in Section 29-2n-2e, Salem field, which was credited with 7,000 bbl. per day from the McClosky pay after an acid treatment. Kingwood's Devonian well is producing from the Devonian-lime pay at 3,402-29 ft., having topped the formation at 3,345 ft. Total depth of the hole is 3,502 ft. The well is 614 ft. from north and 108 ft. from east lines of NW NE Section 20-2n-2e.

Max Pray's Devonian test, No. 5 Cole, NE cor. SE NW SE Section 16-2n-2e, about 1¼ miles northwest of Kingwood's No. 18 Shanafelt, was waiting for cement to set. It had what was reported to have been poor saturation at 3,549-73 ft., or much lower than in the Kingwood well. Pray will deepen No. 2 Albert, NW NE NW Section 3-1n-2e, Salem field, from McClosky to the Devonian horizon, and derrick was up on the location. Other Devonian locations to be drilled are Hollingsworth's No. 11 Kalkbrenner, 1,803 ft. from south and 443 ft. from east lines of SW¼ Section 5-1n-2e; Magnolia Petroleum Co.'s No. 28 Young in NW¼ Section 20-2n-2e, drilling below 500 ft.; Magnolia's No. 6 Young, NE cor. SW¼ Section 21-2n-2e, offsetting a 1-acre Young Church lease; Ladd Oil Co.'s No. 4 Young Church, SW cor. SW NW Section 21-2n-2e, which has started drilling.

Three St. Louis-lime tests have been started in the Salem field. Kingwood Oil Co. has two St. Louis-lime producers on the Shanafelt farm and Magnolia Petroleum Co. one on the W. B. Young farm.

Max Pray has a Devonian-lime test in the south end of the Louden field in Fayette County which should soon prove whether or not another Devonian-lime pool has been opened. It is in No. 6 Ferguson in Section 18-7n-3e. No information is given out on this well by the owner, but preparations were being made to set casing, and the well should be completed shortly thereafter.

Sixty-six oil wells were completed in the state in the past week, together with 22 dry holes and 3 gas wells, or a total of 91 completions.

In Fayette County 14 oil wells produced 1,874 bbl. initially, some of them having been opened only a short time on their initial day. In Marion County 24 new oil wells produced 13,076 bbl.; Lawrence County, 3 wells, 32 bbl.; Clay, 6 wells, 480 bbl.; Wayne, 4 wells, 669 bbl.; Wabash, 4 wells, 645 bbl.; Washington, 2 wells, 58 bbl.; White, 6 wells, 973 bbl.; Richland, 4 wells, 887 bbl. One dry hole each was completed in Cumberland, Shelby, Clay, Edgar, Greene, Clark, Brown, Jersey, and St. Clair counties; two each in Fayette, Lawrence, Washington, and White; and three in Wabash. Two good-sized gassers were completed in Lawrence County and one in White County.

Production of the state during the week averaged 332,175 bbl. per day, with Salem averaging 182,145 bbl.; Louden, 70,050 bbl.; other basin fields, 71,020 bbl.; and old fields, 8,960 bbl.

Following is the completion report for the week, the initial production representing 24 hours unless otherwise given:

Fayette County

In Township 8n-3e, north end of the Louden field in Fayette County, Carter Oil Co.'s No. 3 Mary Dial, SW NW NW Section 34, was shot with 10 qt. at 1,496-1,506 ft., and pumped 100 bbl. in 10 hours. Carter's No. 2 Rhodes-Williams, NE SE SE Section 22, was shot with 10 qt. at 1,419-22 ft., with 40 qt. at 1,506-12 ft., and with 20 qt. at 1,506-12 ft., and flowed 372 bbl. in 24 hours. Carter's No. 6 H. O. Lewis, SW SE NW Section 27, was plugged and abandoned at 1,587 ft. Cypress sand was dry and Bethel sand at 1,577-87 ft. contained water. Carter's No. 4 Kimbrell, SW SE NW Section 29, swabbed 108 bbl. after a 20-qt. shot and 1,000-gal. acid treatment between 1,485 and 1,505 ft. Carter's No. 7 F. L. Brown, SE SE NE Section 31, Bethel sand at 1,571-90 ft., shot with 30 qt., swabbed 104 bbl.

In Township 7n-3e, south end of the Louden field, Carter Oil Co.'s No. 8 Ramsey-Hopper, NW SE SW Section 5, total depth 1,598 ft., was shot with 20 qt. at 1,586-94 ft. and swabbed 134 bbl. in 8 hours, and was rated at 228 bbl. per day. Carter's No. 11 Hobbs, NW SW NE Section 6, was shot twice with 20 qt. between 1,561 and 1,574 ft., and swabbed 111 bbl. in 10 hours. Carter's No. 16 Hobbs, C S½ SW NE Section 6, shot with 40 qt. at 1,410-23 ft., swabbed 63 bbl. in 12 hours. Carter's No. 2 Logue, NE cor. SW NW SW Section 8, shot with 15 and 10 qt. between 1,502 and 1,529 ft., swabbed 87 bbl. in 14 hours. Carter's No. 2 McDonald, SE cor. NW NW SW Section 8, shot with 20 and 15 qt. between 1,498 and 1,527 ft., swabbed 204 bbl. Carter's No. 4 Elzie Owen, SW cor. NW NE SW Section 8, shot with 20 and 40 qt. at 1,503-15 ft., swabbed 126 bbl. in 23 hours. Carter's No. 7 M. Welker, SE SE NW Section 8, shot with 20 and 10 qt. between 1,562 and 1,570 ft., swabbed 16 bbl. in 6 hours. Hoss' No. 5 Sealock, SW NE NW Section 19, shot with 80 qt. at 1,548-65 ft., pumped 12 bbl. per hour. Texas Co.'s No. 6 Wooten, SE SE SW Section 31, total depth 1,551 ft., pumped 189 bbl. per day without a shot.

In Township 6n-2e, St. James pool, Fayette County, Ohio Oil Co.'s No. 3 Swarm, NW NE NE Section 36, shot with 13 qt. in Cypress sand at 1,605-15 ft., pumped 135 bbl.

Marion County

In Township 3n-2e, Tonti pool, Marion County, Harvey Oil & Gas Co.'s No. 7-A Kagey, NE cor. SW SE Section 33, McClosky lime at 2,136 ft., total depth 2,155 ft., acidized with 2,000 gal., pumped 450 bbl. in 24 hours. Chi Tonti's No. 1 Varde, SE SW NE Section 33, had Fredonia lime at 2,170-2,200 ft., perforated pipe at 2,170-74 ft., acidized with 2,000, 1,000, and 500 gal., hole filled with water, abandoned.

In Township 2n-1e, Sandoval pool, Menhall and others' No. 2 Robinson, SE cor. NW SE SW Section 4, Devonian lime pay at 2,972-84 ft., acidized with 1,000 gal., flowed 240 bbl. of fluid, 30 per cent water. Pinched in, the well produced 4 bbl. of oil per hour.

In Township 2n-2e, north end of the Salem pool, Absher & Booth's No. 1-B Sisson, NW cor. Section 3, Benoist sand at 1,935-48 ft., pumped 150 bbl. Magnolia Petroleum Co.'s No. 38 Chitwood, C N½ NE SW Section 16, shot with 50 qt. at 1,850-79 ft., Aux Vases sand, pumped 160 bbl. Kingwood Oil Co. and Bell's No. 17 Shanafelt A, SW NW NE Section 20, Ste. Genevieve lime pay at 1,916-2,014 ft., casing perforated at intervals from 1,935 to 2,014 ft., and acidized with 3,000 gal., drilled to 2,220 ft. and acidized with 2,000 gal. at 2,037-43 ft., flowed 620 bbl. in 24 hours. Ohio Oil Co.'s No. 16 M. J. Young, NW SE NW Section 20, Benoist sand at 1,807-35 ft., shot with 40 qt., pumped 21 bbl. in 2½ hours. Texas Co.'s No. 5 Ray, C W½ SW SE Section 21, McClosky pay at 2,050-57 ft., pumped 112 bbl. Magnolia's No. 25 Shanafelt, NW SE SW Section 29, Benoist at 1,709 ft., total depth 1,845 ft., flowed 1,221 bbl. Magnolia's No. 27 Shanafelt, SW NW SE Section 29-2n-2e, Benoist topped at 1,719 ft., total depth 1,865 ft., flowed 1,125 bbl Magnolia's No. 29 S. Shanafelt, SE cor. NE SE SW Section 29, McClosky lime pays at 1,920-44 ft. and 1,980-84 ft., acidized with 3,000 gal., pumped 398 bbl. Texas Co.'s No. 6 C. Reed B, NW NW SE Section 31-2n-2e, McClosky lime pays at 1,928 to 2,015 ft., at intervals, flowed 189 bbl. Texas' No. 9 W. Stroup, SE SE NW Section 31-2n-2e, McClosky lime at 1,929-41 ft. and 2,017-24 ft., flowed 567 bbl. Texas Co.'s No. 17 K. Wayman, C W½ NW NE Section 31-2n-2e, McClosky pay at 1,920-37 ft. and 1,945-55 ft., flowed 701 bbl. Shell Oil Co., Inc.'s No. 7-B Farthing, NE SW NE Section 32, Aux Vases sand at 1,790-1,866 ft., shot with 25 qt. at 1,852-70 ft., total depth, flowed 553 bbl. Texas' No. 11 Richardson, C S½ SW NW Section 32, McClosky lime pay at 1,870-88 ft., flowed 189 bbl. Texas' No. 1 Wayman-Hays, C S½ NW NW Section 32, McClosky pays at 1,851-67 ft. and 1,867-80 ft., flowed 294 bbl. Texas' No. 6 D. Buckley, SW NW SE Section 33, Benoist at 1,819-68 ft., flowed 431 bbl. Texas' No. 6 Farthing, SE NE SW Section 33, Benoist sand at 1,808 ft., total depth 1,868 ft., flowed an estimated 441 bbl. Dunne & Dailey's No. 2 Lankford, NW cor. SW¼ Section 27, was dry and abandoned at 2,071 ft., McClosky lime was topped at 2,037 ft. It contained only water.

In Township 1n-2e, in the south end of the Salem pool, Texas Co.'s No. 22 Johnson, SW SW SW Section 5, Aux Vases sand at 1,764-1,824 ft., shot with 60 qt., flowed an estimated 1,400 bbl. Texas Co.'s No. 2 Friedrich, NW SE NW Section 7, Aux Vases at 1,820-55 ft., flowed 364 bbl. Texas' No. 6 M. A. Tate, NW SW NE Section 7, shot with 100 qt. in Benoist and Aux Vases sands at 1,767-1,862 ft., flowed 3,220 bbl. Texas' No. 10 W. Friedrich B, SE NE NE Section 8, Fredonia pays at 2,045-63 ft., acidized with 2,000 gal., pumped 204 bbl. Texas' No. 5 R. Lankford, NW cor. Section 9, McClosky lime at 2,034-60 ft., acidized with 2,000 gal., pumped 175 bbl. Kingwood Oil Co.'s No. 7 Devor, NW cor. NE NW NW Section 17, Aux Vases sand at 1,912-29 ft., shot with 10 qt., pumped 20 bbl. of oil and 20 bbl. of water. Texas Co.'s No. 10 Heydrick, NE cor. SE SE SW Section 4, Benoist at 1,859-77 ft., pumped 146 bbl. Texas' No. 4 Lankford, SE cor. NE NW NE Section 4, Benoist sand at 1,853-72 ft., pumped 68 bbl. in 12 hours.

Richland County

In the North Noble pool, Richland County, Pure Oil Co.'s No. 2 Sayre A, SE NW NE Section 24-4n-9e, total depth 2,969 ft., was plugged back to 2,570 ft. and drilled out to 2,588 ft., shot with 23 qt. at 2,578-82 ft., it pumped 73 bbl. Pure's No. 1 R. Campbell, C E½ NE SE Section 1-4n-9e, Roseclaire lime at 2,845 ft., total depth 2,923 ft., flowed 519 bbl. per day on 1-in. choke on 2-in. tubing. Pure Oil Co.'s No. 9 Montgomery B, SW SW NW Section 4-3n-9e, Noble pool, had Cypress sand pay at 2,568-75 ft., and pumped 228 bbl. of oil and 10 bbl. of water. Pure's No. 1 H. Brandt Consolidated, SE NW SE Section 17-3n-9e, Fredonia lime pay at 2,965-70 ft., acidized with 5,000 gal., pumped 67 bbl. of oil and 2 bbl. of water.

Lawrence County

In Lawrence County Mark and others' No. 1 Clapp, C W½ SE SE Section 8-4n-10w of second principal meridian, was dry and abandoned at 1,153 ft. Kentucky Natural Gas Co.'s No. 1 C. Bryant, C N½ SW SW Section 8-4n-10w, was dry in Buchanan sand at 1,101-31 ft. and was abandoned. Seward & McDougal's No. 1 Garvey, SE NW SW Section 5-2n-11w, Fredonia lime top at 1,794 ft., total depth 1,849 ft., acidized with 2,000 gal., swabbed 7 bbl. of oil and a little water in 24 hours. Doc Sunderland and others' No. 1 Leathers, NW SW SW Section 20-2n-11w, Benoist sand at 1,845-58 ft., shot with 20 qt., pumped 25 bbl. of oil and 6 bbl. of water.

Clay County

In Clay County W. H. Wright and others' No. 2 Chandler, SE SW SE Section 12-3n-6e, total depth 2,973

ft., pumped 5 bbl. of oil and 45 bbl. of water per day. Olson Drilling Co.'s No. 2 Irwin estate, C S½ SE NW Section 12-2n-7e, Olson pool, total depth 3,174 ft., acidized with 1,000, 2,000, and 5,000 gal., pumped 25 bbl. of oil and 5 bbl. of salt water. Pure Oil Co.'s No. 5 R. B. Moseley A, SE SE SE Section 4-2n-8e, Clay City pool, total depth 3,037 ft., acidized with 5,000 gal., pumped 106 bbl. Orchard Oil Co.'s No. 4 Norton, SW SW SW Section 7-2n-8e, total depth 3,042 ft., acidized with 5,000 gal., pumped 105 bbl. of oil and 3 bbl. of water. Pure's No. 1 Alpha Rogers, C W½ SW SE Section 18-2n-8e, total depth 3,112 ft., acidized with 5,000 gal., pumped 93 bbl. Pure's No. 1 M. Shackelford, C W½ SW SW Section 34-2n-8e, Fredonia pays at 3,042-47 ft. and 3,055-59 ft., acidized with 5,000 gal., flowed 146 bbl. R. O. Harding's No. 1 Simpson, C N½ NE SE Section 10-1n-6e, a wildcat, dry and abandoned at 3,312 ft., Fredonia lime topped at 3,260 ft.

Wayne County

In Wayne County Robinson and others' No. 2 Caldwell, NE SE NW Section 34-2s-8e, Barnhill pool, flowing 285 bbl. per day from 3,382-95 ft. Pure Oil Co.'s No. 3 McCracken A, NE NE NW Section 4-1n-8e, Enterprise pool, Fredonia pay at 3,026-30 ft. and 3,047-92 ft., in streaks, acidized with 5,000 gal., flowed 48 bbl. New Penn's No. 1 Pruitt, SW SE NE Section 7-2s-9e, an old well deepened from 3,412 ft. to 3,443 ft., showed no oil or gas in the lower levels and was abandoned. Alex M. Snyder's No. 1 Vaughn, SW NE NW Section 35-2s-8e, Barnhill pool, McClosky lime pays at 3,392-98 ft. and 3,399-3,405 ft., acidized with 4,000 gal., flowed 300 bbl. Rockhill's No. 8 Twist B, C W½ W½ NE Section 5-3s-7e, North Aden pool, McClosky pay at 3,354-62 ft., acidized with 3,000 gal., pumped 1½ bbl. per hour with 3 bbl. of water per hour.

Wabash County

In Wabash County Pete Wiggins' No. 1 Steckler, NW cor. Section 26-1s-13w of second principal meridian, Mount Carmel pool, dry and abandoned at 2,640 ft. McClosky lime was topped at 2,604 ft. Kingwood Oil Co.'s No. 3 Bump, SE SE NW Section 9-2s-13w, Keensburg pool, Cypress sand at 2,437-51 ft., shot with 10 qt., pumped 88 bbl. Continental Oil Co.'s No. 1 Gray, SW SW SW Section 20-2s-13w, North Griffin pool, Cypress sand at 2,450-68 ft., shot with 30 qt., pumped 192 bbl. W. N. Bartlett's No. 3 Gray, SE NE SE Section 30-2s-13w, Cypress at 2,455-67 ft., shot with 20 qt., swabbed 155 bbl. Ed Self's No. 1 Schrodt, NW SW NE Section 29-2s-13w, dry and abandoned at 2,533 ft. There was no good Cypress section. Broadus and others' No. 1 Broster, SW SW SE Section 34-2s-14w, Cypress sand at 2,626-30 ft., pumped 210 bbl. Roscoe Jones' No. 1 Schroeder, SE SW SE Section 27-2s-14w, dry and abandoned at 1,950 ft.

Washington County

In Washington County Magnolia Petroleum Co.'s No. 3 Barczewski, NW SE NE Section 15-3s-3w, Cordes pool, sand at 1,254-63 ft., shot with 5 qt., pumped 37 bbl. of oil and 5 bbl. of water. Shell Oil Co., Inc.'s No. 9 Sharkowski, NW NW NW Section 23-3s-3w, dry and abandoned in Benoist sand at 1,283-97 ft. Ohio Oil Co.'s No. 1 Miller, NW SW SW Section 22-3s-3w, total depth 1,507 ft., plugged back to 1,260 ft. and drilled out to 1,275 ft., shot with 7 qt., pumped 21 bbl.

White County

In White County Charles E. Baldwin and others' No. 2 McIntosh, SW NW SE Section 31-3s-8e, Mill Shoals pool, Aux Vases at 3,217-29 ft., total depth 3,391 ft., acidized with 1,000 and 2,000 gal. through perforated pipe at 3,216-38 ft. and 3,260-65 ft., pumped 29 bbl. of oil and 18 bbl. of water. Kingwood Oil Co.'s No. 1 Seifreid, NW SE SW Section 30-3s-11e, salt water and abandoned at 3,558 ft. St. Louis lime was topped at 3,186 ft. Roche, Voyles and others' No. 1 Lewis, NW SE NE Section 31-3s-8e, dry and abandoned at 3,416 ft. McClosky lime was logged at 3,360-70 ft. Aux Vases sand was tested through perforations but the showing was noncommercial. McIntyre & Johnson's No. 1 Hon, NE NW SE Section 9-4s-14w, total depth 3,003½ ft., plugged back to Benoist sand at 2,711-38 ft. and tested, it pumped 22 bbl. of oil and 8 bbl. of water in 8 hours but pumped off. Superior Oil Co.'s No. 4 Ford, NW NW NE Section 9-5s-14w, flowed 300 bbl. per day through a ¾-in. choke from Waltersburg sand at 2,145-70 ft., shut-in pressure 145 lb. Pure Oil Co.'s No. 1 Martin, C W½ SW NW Section 7-6s-9e, Fredonia lime pay at 3,081-3,101 ft., acidized with 3,000 gal., pumped 31 bbl. in 14 hours, but pumped off. Exchange Oil Co. and Ohio Oil Co.'s No. 1 Rudolph, C NE NE Section 14-6s-9e, Storms pool, Waltersburg sand at 2,250 ft., total depth 2,279 ft., flowed 351 bbl. through casing and tubing with 12,000,000 cu. ft. of gas. Tatums and others' No. 1 Aud, NE SW SW Section 23-6s-9e, Wal-

(Continued on Page 115)

CENTRAL OHIO

NEWARK, Ohio, Nov. 27.—Thirteen gas wells, ten dry holes, and two oil wells make up the report of completions in the Ohio fields covered by this report. Medina and Stark counties yielded fair gas wells in the 2,000,000-cu. ft. class.

Athens County, Rome Township, McBell Oil Co.'s No. 4 H. M. Antle, Section 30, has a settled production of 20 bbl. from first Cow Run sand at 378-97 ft. Bern Township, Bern Oil & Gas Co.'s No. 18 William G. Selby, Section 30, is a small gasser in the second Berea at 1,430 ft. Canaan Township, Gibson and others' No. 1 H. H. Starlin, Section 6, is a dry hole in the second Berea; total depth 1,590 ft.

Belmont County, Wayne Township, Barnesville Development Co.'s No. 1 L. M. Wharton, Section 35, found the Berea dry; total depth 1,960 ft.

Gallia County, Addison Township, Ohio Fuel Gas Co.'s No. 1 Ora C. Shaver, Section 28, is a small gas well in the second Berea sand, gaging 50,000 cu. ft. at 1,544 ft.

Guernsey County, Millwood Township, Purdy Gas Co.'s No. 1 Sade Hays, Section 15, gaged 450,000 cu. ft. of gas, open flow, at 863-95 ft.

Holmes County, Mechanic Township, Bell Brothers' No. 1 Jacob Schlarb, Lot 34, was dry and abandoned in Berea sand, total depth 841 ft.

Knox County, Howard Township, H. E. Perkins' No. 1 fee, Lot 8, third quarter, was drilled through the Clinton to 2,960 ft., and was dry and abandoned.

(Continued on Page 104)

Uneventful Week in Indiana, But New Work Was Started

EVANSVILLE, Ind., Nov. 27.—Relatively small wells, and few of these, were the week's crop of completions in the Indiana fields in the past week in review. A 125-bbl. well in the Griffin pool in Gibson County was the best of the week's new wells. Following is the record of completed work and progress of important drilling wells:

Gibson County

Hollandsworth & Bander's No. 18 Cooper, SE cor. NW SE Section 12-3s-14w, was completed in Cypress sand at 2,490-2,508 ft., total depth 2,516 ft. It started off at 125 bbl. per day on the pump. Hollandsworth Brothers' No. 1 Keck, SE cor. NE NW Section 34-3s-14w, was completed at 2,954 ft. It pumps 75 bbl. per day from Tar Springs pays at intervals from 2,145 ft. to 2,212 ft.

Continental Oil Co. was drilling at 1,160 ft. in No. 7 Bozeman, NE SW NW Section 24-3s-14w. Lewis Production Co.'s No. 7 Cooper D, NW SE NW Section 13-3s-14w, location. W. F. Lacey's No. 1 Julian, NE NW SE Section 26-3s-14w, rig up to deepen from 2,525 ft. (an old well). Misener & Baldwin and Apex Drilling Co.'s No. 1 New Harmony Bank, SW cor. SE NW Section 27-3s-14w, shut down for orders at 2,767 ft. Continental Oil Co.'s No. 2 Keck, SW SE SW Section 27-3s-14w, Aux Vases sand at 2,784-94 ft., total depth, rigging up standard tools. Continental's No. 3 Keck, SW SW SW Section 26-3s-14w, drilling at 200 ft. Hollandsworth and others' No. 4 Cooper, NE cor. SE NE Section 24-3s-14w, Waltersburg sand at 2,073-2,102 ft., set 7-in. casing at 2,070 ft. Hollandsworth and others' No. 3 Cooper, NE cor. NE SE NE Section 24-3s-14w, shot with 20 qt. at 2,062-2,100 ft., cleaning out. Lewis Production Co.'s No. 1 Cooper D, C SE NE NW Section 13-3s-14w (corrected location), Tar Springs sand at 2,122-40 ft., set 7-in. casing at 2,124 ft. Location of Lewis Production Co.'s No. 6 Cooper D, corrected to 1,030 ft. from north and 330 ft. from east lines of NW¼ Section 13-3s-14w. Bander and others' No. 28 Cooper, SE cor. Section 13-3s-14w, Cypress sand at 2,504 ft., total depth 2,563 ft.; will plug back and test Waltersburg sand at 2,075-90 ft. Papoose Oil Co.'s No. 2 Cooper B, SE SE SW Section 12-3s-14w, hole full of water at 2,876-81 ft., fishing for tools. Huddleston and others' No. 2 Jolly, SW cor. SE SE NW Section 18-3s-13w, rig up. Ray Ryan and others' No. 1 Skiles, SW cor. NW NE Section 18-3s-13w, shut down at 2,576 ft. Continental Oil Co.'s No. 1 Thrash, NE cor. NW NE SW Section 18-3s-13w, Cypress pay at 2,521-27 ft., 1,000 ft. of oil in the hole. Bander and others' No. 26 Cooper, SW cor. SE NE NE Section 24-3s-14w, total depth 2,562 ft., set 7-in. casing at 2,540 ft., Waltersburg sand at 2,063-2,103 ft. had saturation; Glen Dean top at 2,779 ft. and Cypress top at 2,524-32 ft. Lacey and others' No. 2 Heston, SE cor. SW NE Section 8-3s-13w, total depth 2,816 ft., had saturation at 2,755-61 ft., 2,767-75 ft., 2,808-14 ft., running casing to test. Papoose Oil Co.'s No. 1 Cooper C, NE cor. SW¼ Section 18-3s-13w, Cypress sand at 2,470 ft., total depth 2,484 ft., ran 5½-in. casing at 2,484 ft. Hulman and others' No. 1 Hollis, SE SE NW Section 36-2s-11w, underreaming 10-in. casing to 1,408 ft., total depth. Newton Pipe Line Co.'s No. 2 Carruthers, NE SE SE Section 26-1s-10w, fishing at 1,547 ft. Shirley and others' No. 1 McRoberts, NE cor. NW NE Section 7-1s-9w, shut down at 1,000 ft.

Daviess County

D. L. Norris and others' No. 1 Daviess County Land Co., NE NE NE Section 17-2n-5w, deepened from 320 ft. to 814 ft., was abandoned after the hole had filled with water. It was an old short-lived gas well.

Fred L. Hartman's No. 1 White, SW cor. NW NW SW Section 22-2n-7w, drilling at 1,360 ft. Ben D. Ruble's No. 1 Huff, NW SE NW Section 9-2n-5w, Paoli lime at 599 ft., shut down at 635 ft. Horton & Wiggins and others' No. 1 State Life Insurance Co., SW SW NW Section 14-1s-12w, drilling with rotary at 123 ft.

In Posey County

In Posey County Sun Oil Co. completed a 75-bbl. well in No. 1 Grebe, NW NE SW Section 1-7s-12w, producing from 1,774-99 ft. and 1,864-84 ft. It flowed naturally. Haynes & Thomas abandoned No. 4 Seifert, NW cor. SW SE Section 19-6s-12w, at 370 ft.

Illind Oil Co.'s No. 3 Streube, NE NE SE Section 1-7s-12w, Waltersburg sand at 1,729-48 ft., total depth 1,752 ft., testing. C. J. Evans' No. 1 Martin, SE SW SW Section 3-5s-12w, shut down at 875 ft. Rossi Drilling Co. and others' No. 1 Egli, SE SE NW Section 19-6s-12w, set 10-in. casing at 45 ft. John Lindas' No. 1 Seifert, NE SE SW Section 19-6s-12w, shut down at 402 ft. Sun Oil Co.'s No. 1 Gettman, NW SW SE Section 35-6s-12w, spudded. H. J. Baker and others' No. 1 Peters, SE cor. NW NW Section 11-5s-3w, drilling at 210 ft. Kenilland and others' No. 1 Montgomery, NE NE NE Section 9-4s-12w, shut down at 700 ft. McKeethen and others' No. 2 Keck, C N½ NW NW Section 35-3s-14w, drilling at 700 ft. Hollingsworth and others' No. 1 Keck, NE cor. SE NW Section 34-3s-14w, on a 2-acre strip, drilling at 1,005 ft. Hollandsworth Brothers' No. 2 Keck, NE cor. SE NE NW Section 34-3s-14w, rig up. Continental Oil Co.'s No. 1 Kleiderer, NE NW NW Section 35-3s-14w, spudded. Somers & Egan's No. 2 Keck, SE NE NE Section 34-3s-14w, rig up. J. E. Crosbie, Inc.'s No. 2 Keck, NW SE NE Section 34-3s-14w, set 10-in. casing at 135 ft. Superior Oil Co.'s No. 1 Mumford Realty Co., NE SW NW Section 31-3s-13w, total depth 3,047 ft., small showing of oil in Aux Vases sand at 2,803-12 ft., and small showing in Ste. Genevieve dolomite at 2,898 ft. Superior Oil Co.'s No. 14 New Harmony Real Estate Co., SE SE SW Section 10-5s-14w, Waltersburg sand at 2,183-2,213 ft., set 7-in. casing at 2,183 ft.

Spencer County

In Spencer County, Pollick and others had a hole full of water at 1,506 ft., total depth, in No. 1 Hazen, C NW NW Section 19-7s-6w and abandoned the test. Damron Brothers' No. 1 Bumpass, C NW SE Section

19-7s-6w, had a gas sand at 902-18 ft., the well producing 10,200,000 cu. ft. of gas in 24 hours. It was completed. Kelly and others' No. 1 Schnell, NW SW SW Section 9-6s-4w, was abandoned at 1,070 ft. The hole filled with water at 790 ft.

Schreel, trustee's No. 1 Biggerstaff, SW SW SE Section 6-7s-7w, spudded. Kentucky Natural Gas Co.'s No. 1 Axton-Bumpass, S half SW NE Section 30-7s-6w, set 5-in. casing at 871 ft. Damron Brothers' No. 1 Smith, NW cor. NE SW NE Section 19-7s-6w, location. Sycamore Oil Co.'s No. 1 Crowder, NW cor. SW NW Section 7-7s-7w, rigging up standard tools. Major Oil Co.'s No. 1 Haynes, SE SE NE Section 11-6s-4w, drilling in St. Genevieve lime at 1,430 ft. Edward Lorsch's No. 1 fee, SW cor. NE SW NW Section 12-6s-4w, shut down at 895 ft. B. K. Maitland's No. 1 Gross, SW NW NE Section 11-6s-4w, location. J. S. Albertson's No. 1 Ray, NW SW SE Section 11-6s-4w, shut down at 630 ft.

Pike County

A. J. Walker and others' No. 1 Colvin, N½ NW NE Section 30-1n-6w, Pike County, was completed at 754-58 ft. It produced 230,000 cu. ft. of gas in 24 hours.

In Pike County W. O. Allen, Jr., and others' No. 1 Electric Shovel Coal Co., SW SE SE Section 18-2s-7w (corrected location), top of Glen Dean at 921 ft., shut down at 1,109 ft. A. J. Walker and others' No. 1 Johnson, NW SE SE Section 19-1n-6w, spudded. A. J. Walker and others' No. 1 Colvin, SW cor. NE SE NW Section 30-1n-6w, drilling at 110 ft. A. J. Walker and others' No. 1 Denam, 165 ft. from south and 660 ft. from west lines of NW NE Section 30-1n-6w, spudded. Walker and others' No. 1 Garrison, NW NE NE Section 30-1n-6w, drilling at 150 ft. Walker and others' No. 1 Hancock, SE NE NW Section 30-1n-6w, drilling at 450 ft.

In Vigo County Siosi's No. 1 Stufflebean, N½ NW SE Section 16-10n-10w, good showing of oil and gas at 2,137-32 ft. and an increase of gas at 2,144-55 ft.; will shoot both horizons; Niagara lime was topped at 2,115 ft.

In St. Joseph County Robert Allen Crude Oil Co.'s No. 1 Sones, NE SW SE Section 20-38n-4e, location.

In Jay County Clarence Welch's No. 8 Brinkerhoff, NW NE NE Section 21-24n-14e, machine. H. J. Brine's No. 1 fee, SW SE SE Section 22-24-12e, drilling at 625 ft. Ellen K. Burke's No. 1 Outcalt, C W½ SW Section 24-22n-14e, drilling at 300 ft.

In Randolph County Godwin & Murray's No. 1 St. John, C NE NE Section 8-21-12e, drilling at 100 ft.

In Clay County Dorsey Oil Co.'s No. 1 Hickman, NW SE SE Section 15-9n-6w, drilling at 340 ft.

In Sullivan County E. L. Shandy and others' No. 2 Osburn heirs, NE cor. NW SW SE Section 12-8n-10w, drilling at 425 ft. Siosi's No. 1 Cushman, NE NE SE Section 18-8n-10w, drilling at 2,225 ft. Niagaran Oil Co.'s No. 6 Riley, NW NE NW Section 33-8n-10w, drilling at 404 ft. Niagaran Oil Co.'s No. 1 Knowles, SE SE NW Section 6-8n-9w, Blue Lick water at 1,460 ft., drilling at 1,500 ft.

In Knox County M. L. T. Syndicate's No. 1 McHenry, Donation 214, Township 5n-9w, Devonian lime at 2,773 ft., drilling at 2,790 ft. Hart & Williams' No. 1 Montgomery, C NE SW Section 28-5n-7w, drilling at 100 ft. Michel Brothers' No. 1 Schloot, SE SE SE Section 1-5n-7w, small showing of oil at 885-918 ft., shut down at 925 ft. Newton Pipe Line Co.'s No. 1 Like, Donation 71, Township 2n-9w, total depth 2,662 ft., shut down for orders; tested showing at 1,530-35 ft., bailing 5 bbl. of oil and 2 bbl. of water.

In Clark County N. N. Smith's No. 1 Schubnell, SE SE SE Grant 182, Township 1s-6e, drilling at 225 ft.

In Vanderburg County Volkman and others' No. 1 Heidt, C E½ NE SW Section 18-7s-11w, total depth 1,880 ft., was plugged back to 1,844 ft. and shut down for orders.

In Perry County Persise & Wyman's No. 1 Greiner, SW SE SE Section 13-4s-2w, deepened from 320 ft. to sand at 757-77 ft. and shot with 80 qt., cleaning out.

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WESTERN KENTUCKY

OWENSBORO, Ky., Nov. 27.—A 30-bbl. well and five dry holes were completed in the western Kentucky fields in the past week, and nine new operations were started. Following is the summary of the week's work:

Butler County, Gillstrap district, Hume and Steel's No. 1 T. E. Carwile, dry hole, total depth 1,525 ft. Mount Zion School district, South Penn Oil Co.'s No. 2 E. R. McPherson, dry hole at 473 ft.

Daviess County, Handyville district, Master Oil Co.'s No. 1 W. W. Davis, spudding in. A. Schaffer and others' No. 1 Mort Fulkerson, 30-bbl. well in Jett sand, total depth 1,633 ft., plugged back to 1,210 ft. Oklahoma district, I. Huff and others' No. 2 Phillip Demmers, rigging up. Utica district, C. E. Daugherty's No. 6 C. W. Howard, drilling at 160 ft. Baldwin Oil Co.'s No. 3 Dr. A. A. Westerfield, dry hole at 1,781 ft.; No. 4, spudding in.

Hancock County, Patesville district, Dewey Ramsey's No. 1 M. T. Compton, dry hole at 565 ft.

McLean County, South Livermore district, J. D. Reynolds and others' No. 2 Hollis Howell, drilling at 750 ft.

Ohio County, Davidson Station district, Mecca Oil Co.'s No. 2 Sadie Fentress, dry hole at 680 ft. Narrows district, B. Calvert's No. 1 Ben Gentry heirs, rigging up. Pleasant Grove Church district, Eureka Oil & Gas Co.'s No. 1 Pleasant Grove Church lot, rigging up.

Union County, Walnut Grove district, T. L. Boyce's No. 1 Lynn, moving in rotary.

Webster County, Tilden district, Chester Oil Co.'s No. 1 A. B. Clark, rigging up rotary.

EASTERN KENTUCKY

ASHLAND, Ky., Nov. 27.—Seven oil wells, two gas wells and one dry hole were reported completed in the past week in the eastern Kentucky oil fields.

The Kentucky-West Virginia Gas Co.'s No. 5268, George McKinney land, Toler Creek, Floyd County, was completed in the Big lime at 2,115 ft. It was acidized and resulted in a 2,711,000-cu. ft. gas producer.

Seven oil wells were completed in the South Fork district of Powell County. The wells and their initial production are: Downey & Banser's No. 2 W. M. Tackett, on Miller's Creek, 5 bbl. a day, total depth 800 ft. Joe T. Brown's No. 6 Lawery heirs, on Miller's Creek, 5 bbl. at a total depth of 820 ft. Evans Oil & Gas Co.'s No. 1 B. F. Crude heirs, on Miller's Creek, 8 bbl. at a total depth of 840 ft. M. C. Irwin's No. 2 Ollie W. Rogers, total depth 800 ft., 5 bbl. Lyle and Kinser Brothers' No. 4 Kinser heirs, total depth 840 ft., 10 bbl. Agatha Wireman's No. 2 Kinser heirs, Tract 2, 10 bbl. at a total depth of 550 ft. Arthur E. Wireman's No. 8 E. A. Wireman, total depth 800 ft., 10 bbl.

McCool & O'Brien, of Washington, Pa., completed No. 13 Bennett, near Music in Carter County, total

(Continued on Next Page)

Southwest Texas District

By F. L. SINGLETON

Search for Tertiary Wilcox Rewarded in Two Counties

CORPUS CHRISTI, Tex., Nov. 27.—The search for Tertiary Wilcox production in the Southwest Texas district was rewarded with success as two deep wells in the shallow Bruni field, Webb County, and at West Tuleta, Bee County, reached their objective. While the full significance of each strike will not be determined for several days, sufficient evidence has been obtained to set the stage for a new type of drilling program in the district.

Tide Water Associated Oil Co.'s No. 7 Bruni, just east of the old Bruni field, Webb County, blew out from a total depth of 8,959 ft., and before the hole bridged over it flowed an estimated 30,000,000 to 50,000,000 cu. ft. of gas daily with an unestimated amount of distillate. The crew is now trying to recover the drill pipe and a protection string of casing will probably be cemented before the hole is carried deeper. Four feet of shale was recovered at 8,690-95 ft., and the well started to blow after 4 ft. had been drilled at 8,954-59 ft. The sand section is believed to be the top of the Wilcox.

This is the deepest test drilled in the Laredo district, and the presence of Tertiary Wilcox sand this far down dip offers encouragement to deep-drilling possibilities in practically every shallow field located along this old Jackson shore-line trend.

Along this same trend, but up dip, Mills Bennett Production Co. and Anderson-Prichard Oil Corp.'s No. 1 D. E. Robinson, West Tuleta field, Bee County, is believed to have cored the main Wilcox section at 7,912-21 ft., where the well attempted to blow out, and was brought under control with 15 lb. mud. The blowout stuck the drill pipe, and the progress of the well will be delayed for several days due to a fishing job. This is the fourth showing, as drill-stem testing in sand stringers in the top of the Wilcox section between 7,531 and 7,685 ft., showed favorable results.

Wellington Oil Co. of Delaware and others' No. 1 J. W. Booth, another interesting Wilcox test located in the Fordtran area, Victoria County, was abandoned as dry at a total depth of 9,118 ft. Slight showings of oil and gas were logged at intervals at 8,806-9,017 ft., but drill-stem testing showed salt water. Additional development is expected to be started in this area in the near future.

Coronado Corp.'s No. 1 Heard, a wildcat southeast of Beeville, Bee County, continues to log encouraging showings. Shaly sand with an oil odor was logged at 5,187-98 ft.; sand with an oil odor at 5,201-03 ft., and sand showing oil at 5,205-07 ft. Drill-stem testing at 5,195-5,207 ft. recorded 2 lb. of working pressure and 180 ft. of drilling mud and salt water. At the close of the week the well was coring ahead in oil sand below 5,207 ft.

Location for a wildcat was made in Victoria County by W. S. Boyle for No. 1 P. C. Meyer, 1 mile southeast of Victoria, in the Victoria townsite survey, Block 3. The well is being drilled on a farmed-out lease from Shell Oil Co., Inc. Renwar Oil Corp.'s No. 1 M. L. Stoner, a wildcat in Diego Garcia Survey, is reported to have cemented casing for a production test, after sidewall cores recovered shaly sand, showing oil at 4,281 ft., and sand showing oil at 4,283 ft. The hole is bottomed at 6,015 ft.

Along the Frio-Vicksburg trend, in Jim Hogg County, Humble Oil & Refining Co. is attempting a drill-stem test in No. 2 Mestena Oil & Gas Co., 7 miles southeast of Hebronville, in the Francisco Pena grant. Sand with an oil odor was cored the previous week at 5,399-5,402 ft., and at 5,402-05 ft. After several attempts to drill-stem test the section failed, the hole was cored to a total depth of 5,430 ft., with shaly sand and sand having an odor of oil logged at intervals from 5,408 ft. to the total depth.

In the same county, northeast of Randado, Mayfair Oil Corp.'s No. 1 Gutierrez, was completed for a small pumper to open a new field. Estimated initial production was 18 bbl. per day. Production is from the Government Wells sand at 3,217-23 ft.

In La Gloria field, Jim Wells County, Magnolia Petroleum Co.'s No. 1 E. N. Stolze, ½ mile north of the discovery well, plugged back from a total depth of 7,347 ft. to 7,014 ft., and tubing was run for completion at 7,000-10 ft., after a drill-stem test, recovered 1,050 lb. working pressure and 390 ft. of mud. An electrical survey showed the sand section at 6,998-7,010 ft.

In Starr County Clopton, Mitchell & Zimmerman's No. 1 Seabury is believed to have opened a new gas field as a 1½-minute drill-stem test at 2,614-45 ft. showed 450 lb. of working pressure. The well attempted to blowout and was shut in after it was brought under control with heavy mud. Sand showing gas was logged at 2,481-83 ft., and at 2,615-65 ft., the total depth.

Along the Balcones fault line district, E. A. Weyel's No. 1 H. Lentz loomed as the discovery well of a small pool as it swabbed 2½ bbl. of 41.8-gravity oil per day from a sandy shale section at 704-28 ft. The hole is bottomed at 792 ft., with 3-in. casing cemented at 700 ft. It is in the Vicente Michelli Survey 52.

Distillate production from a new sand was opened in the Agua Dulce field, Nueces County, as Union Producing Co. prepared to complete No. 2 J. J. Elliff. The hole is bottomed at 5,135 ft., and 7-in. casing was cemented at 5,127 ft. A 5-minute drill-stem test at 5,080-88 ft. recovered 630 ft. of mud, cut with distillate, and 320 lb. of working pressure.

Wellington Oil Co. and Pan American Production Co.'s No. 1-B Driscoll, an east outpost test in the Clara Driscoll field has cemented casing for a production test of sand at 5,293-5,301 ft., where a recent drill-stem test recovered 510 ft. of 24-gravity oil and 410-lb. working pressure. The hole is bottomed below 8,000 ft. and additional sand showing possibilities is reported to have been recorded on an electrical survey.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Southern Minerals Corp.'s No. 1 Dunn & Peterson, perforated casing 7,105-20 ft., 93 bbl., 3/32-in. choke.

Bexar County

Gas Ridge field: S. K. & C. Production Co.'s No. 1 Barker, 660 ft., 3 bbl., jetting.

Duval County

Benavides field: Hiawatha Oil & Gas Co.'s No. 17 Southland Life Insurance Co., perforated casing 4,756-62 ft., 94 bbl., 5/32-in. choke. Cedro Hill field: Texas Co.'s No. 32 Duval County Ranch Co., sand 1,450-55 ft., 51 bbl. jetting. Fitzsimmons field: Sun Oil Co.'s No. 20 Brueggeman, perforated casing 4,272-78 ft., 107 bbl., 9/64-in. choke. Hoffman field: Cox, Hamon and others' No. 9 Cuellar-Hagan, sand 2,674-76 ft., 65 bbl., jetting. Lundell field: Government Wells Oil Co.'s No. 37 Lundell, sand 1,547-55 ft., 56 bbl., ¼-in. choke. Piedra De-Lumbre field: Sand 2,153-67 ft., 100 bbl., jetting.

Guadalupe County

Darst Creek field: Bluehawk Oil Co.'s No. 4 Richburg, 2,601 ft., 76 bbl., pumping. Texas Co.'s No. 5 Parish, 2,614 ft., 75 bbl. oil and 25 bbl. salt water.

Jim Wells County

Ben Bolt field: Bridwell Oil Co.'s No. 4 Smith, perforated casing 5,256-61 ft., 114 bbl., 7/64-in. choke. Cox & Hamon's No. 1 Galveston Dry Goods Co., perforated casing 5,323-27½ ft., 175 bbl., 3/32-in. choke. Reynolds field: Kilgore Development Co.'s No. 4-A Mosser, perforated casing 5,150-53 ft., 162 bbl., ⅛-in. choke. East Alice field: Pan American Production Co.'s No. 1 Lynn, perforated casing 5,260-70 ft., 1 bbl., 3/32-in. choke.

Jim Hogg County

Colorado field: Henshaw Brothers' No. 4-B Trevino, perforated casing 3,008-18 ft., 100 bbl., ⅛-in. choke.

Nueces County

Agua Dulce field: Union Producing Co.'s No. 5 Puri, sand 5,041-48 ft., gas well. Luby field: Stanolind Oil & Gas Co.'s No. 30 Spessard, perforated casing 5,172-76 ft., 132 bbl., ⅛-in. choke, 10 per cent salt water. North Luby field: Seaboard Oil Co.'s No. 4-A LaPrelle, perforated casing 5,080-84 ft., 155 bbl., ⅛-in. choke. Richard King field: Southern Minerals Corp.'s No. 12-B King, perforated casing 5,398-5,406 ft., 109 bbl., ⅛-in. choke. South Clara Driscoll field: Conservative Oil Co.'s No. 3 Flynn, perforated casing 4,670-73½ ft., 112 bbl., 9/64-in. choke.

McMullen County

Campana field: Loma Oil Co.'s No. 3 Edrington, 3,082 ft., dry and abandoned.

Refugio County

LaRosa field: Coronado Corp.'s No. 32 Rooke, perforated casing 5,714-20 ft., 680 bbl., ¼-in. choke. Refugio field: W. F. Morgan's No. 7-D Mitchell, perforated casing 6,359-62 ft., 21 bbl. oil, large amount of salt water, 23/64-in. choke.

San Patricio County

East White Point field: Houston Oil Co.'s No. 5 fee, perforated casing 5,668-75 ft., 219 bbl., 5/32-in. choke. Plymouth Oil Co.'s No. 1 M. A. Kenedy, perforated casing 5,621-33 ft., 158 bbl., 7/64-in. choke. Plymouth Oil Co.'s No. 1-B Mayo-Koonce, perforated casing 5,658-76 ft., 135 bbl., 7/64-in. choke. Humble Oil & Refining Co.'s No. 2-B Speer 5,680 ft., 146 bbl., ⅛-in. choke. Plymouth field: Easter-wood Production Co.'s No. 3 Cryer, perforated casing 5,644-49 ft., 145 bbl., 9/64-in. choke. Texon Royalty Co.'s No. 5 Rambo, perforated casing 5,655-63 ft., 119 bbl., ⅛-in. choke.

Starr County

Margo field: T. E. Stephan's No. 1 Zamora, 504 ft., dry and abandoned.

Victoria County

East Placedo field: Stanolind Oil & Gas Co.'s No. 8 Vandenberger & Hill, sand 6,374-79 ft., 158 bbl., ¼-in. choke. Keeran field: Gulf Oil Corp.'s No. 16 Keeran, sand 5,612-17 ft., 180 bbl., ⅛-in. choke.

Webb County

West Cole field: V. G. Schimmel's No. 1-A Valdez, 2,608 ft., dry and abandoned.

Eastern Kentucky

(Continued from preceding page)

depth 335 ft., in sand. It is producing 300,000 cu. ft. of gas daily.

H. P. Perry finished a dry hole at 800 ft. in No. 3 on the George A. Faulkner land on South Fork in Powell County.

The Kentucky-West Virginia Gas Co.'s No. 5260, Florence Hall land, on Right Beaver in Knott County, started at 280,000 cu. ft. of gas after a 20-hour test, rock pressure 315 lb., in shale, total depth 2,677 ft.

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Among the Drilling

PARKER DRILLING CO. is opening a new field in St. John the Baptist Parish, coastal Louisiana, as Pan American Production Co.'s No. 1 Mill is being completed for a distillate producer through perforated casing at 8,115-22 ft. This well was drilled to a total depth of 10,175 ft., and has been in the testing stage for several weeks.

J. W. FRAZIER abandoned his joint wildcat test with Wellington Oil Co. in Victoria County, Texas, at a total depth of 9,118 ft., and the rig has been moved to the Juliff area, Brazoria County, where a joint operation will be started with John Mayo on the Darrington State Prison farm lease.

GEORGE ECHOLS abandoned Titanic Oil Co.'s No. 1 S. E. Allen at the Allen dome, Brazoria County Texas, at 5,230 ft. Drilling is being started on a wildcat located on Galveston Island, Galveston County, for Hebert & Smith, while another operation is reported in Fort Bend County for Harold Link and others.

HOUSH & THOMPSON are moving a rotary to Allen Parish, coastal Louisiana, for their No. 1 Industrial Lumber Co., a projected 10,000-ft. well located on the Ten Mile prospect in Section 1-4s-5w.

McDANNALD OIL CO. is attempting to open gas production at the College Point prospect, Matagorda County, Texas, as 5½-in. casing was cemented at 4,260 ft. in No. 1 Woodhouse. The rig from this well will be moved about 1 mile north for No. 1 G. W. Shell.

ALLEN & MORRIS are completing two tests in the Agua Dulce field, Nueces County, Southwest Texas, as gassers. The wells were drilled for Agua Dulce Oil Co. and Process Oil Co. In Nueces County, drilling was started on Fred W. Shield's No. 1 McIlroy, a wildcat test, while at the La Rosa field, a new operation was started for the Coronado Corp.

OLSEN DRILLING CO., Tulsa, has been awarded contracts for a 40-well drilling campaign by Anderson-Prichard Oil Corp., of Oklahoma City. The acreage was farmed out recently by the corporation from the Coline Oil Co. and is in the large Wasson-Bennett pool of Gaines and Yoakum counties in West Texas. The program is estimated to cost $1,400,000, based on a per-well cost of $35,000. The first two tests, Nos. 1-761 Willard and 1-805 Willard, are being rigged up for immediate drilling. Locations are, respectively, SE NW Section 761 and SW cor. Section 805, both in Block D, Gibson Survey, Yoakum County. Olson Drilling Co. will dig the pits and supply the derrick, fuel, water, surface pipe, and will cement the surface casing. Anderson-Prichard will cement the oil string and will furnish the remainder of the lease equipment. It is planned to keep four rigs running continuously.

R. S. KIRBY, contractor of Kilgore, Tex., has been awarded the drilling of a new wildcat test in Rusk County, eastern Texas. John R. Cross, of the Golden Rod Drilling Co., Henderson, announced that a deal had been closed to drill another well in the area northwest of New Salem in the southwestern part of Rusk County, where Golden Rod recently finished a dry hole. The test will be drilled by Jeff Bolton, of Henderson, with R. S. Kirby as contractor. Rig is being moved in for the 4,200-ft. test which is located 500 ft. southeast of the Golden Rod failure and is on the Hall Wood land in Lot 10, J. I. Sanches Survey, 2 miles northwest of New Salem.

TARGET DRILLING CO., Wichita Falls, Tex., is preparing to drill a new 3,200-ft. test in Winn area of Jack County, northeast of Bryson, Tex. The location for its No. 1 A. B. Kuykendall has been staked 466 ft. from the south and west lines of the G. W. Brock Survey, Abstract 1449.

D. D. THOMAS, San Angelo, Tex., drilling contractor, is drilling below 2,000 ft. at Frank Montgomery's No. 1 Sanders, NW NE NW Section 12-17s-32e, in the Loco Hills pool of Eddy County, New Mexico. In the Maljamar field a depth of 1,100 ft. has been reached in A. Woods' No. 1 Simon, NW NE Section 29-18s-32e.

SUMMIT DRILLING CORP., Tulsa, is building derrick preparatory to drilling No. 1 Campbell, SE NE SE Section 24-10n-7e; the well is to go to the Cromwell sand at a depth of 3,600 ft. The well will be drilled for Russell S. Tarr, N. B. Feagin, and associates in the North Bethel pool, Seminole, Oklahoma.

OLSON DRILLING CO. is preparing to drill No. 1 Scritchfield, NW NE SE Section 4-12-3w, Oklahoma County, Oklahoma, for the Olson Oil Co.

JOHNSON-KEMNITZ Drilling Co., Oklahoma City, and McGraw Oil Co., Tulsa, at No. 1 Godfrey-Neff, SW SE

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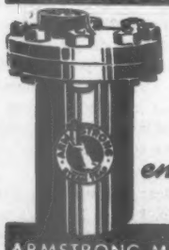

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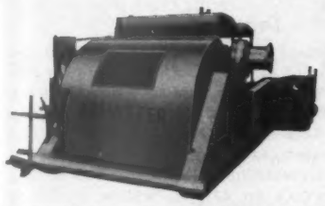

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NE Section 14-6s-6e, to the southeast of Madill, in Marshall County, Oklahoma, went out of the sandy lime break it encountered at 3,900 ft.; drilling to 3,936 ft., it got hard white sand, showing little porosity and just a few spotted and stained shows. The crew was making hole at 3,940 ft. The well is in the area which is to be flooded by the Denison Dam, a W.P.A. project.

H. & M. DRILLING CO., McPherson, Kans., has rigged up tools for No. 1 Gemeinhardt, a semiwildcat in the CSL NE NE Section 28-19-10w, ¼ mile from production in the northeast extension of the Silica pool of Rice County, Kansas.

JOHN F. DUWE, LEONARD A. FARRIS and H. H. ROYER have started operations at No. 1 Meggers, a wildcat in the CEL E½ SW Section 21-20-11w, 1½ miles east of production in the one-well Hagen pool and 2 miles west of production in the South Silica pool of Barton County, Kansas.

FAIN DRILLING CO. and Sunray Oil Co. at No. 1 Briggs, SW SW NW Section 29-20-5w, McPherson County, Kansas, a northeast extension of the Welch pool, flowed 100 bbl. of oil an hour from the chat at 3,350 ft. top, total depth 3,356 ft.; operators will run tubing.

W. B. OMOHUNDRO, Wichita Falls, Tex., completed two wells in the K.M.A. area, Texas, one on his Jones tract and another on the M. A. Love tract. No. 1 O. M. Jones in Block 2, B.S.&F. Survey, on a commission test of 3 hours flowed 141 bbl. through ¾-in. choke from sandy lime from 3,942 to 4,017 ft. Same operator's No. 2 M. A. Love, in Block 11, W. S. Kennard Survey, Abstract 171, registered in 3 hours 80 bbl. from saturated lime at 3,906-4,098 ft., total depth 4,100 ft.

MANAHAN DRILLING CO.'S No. 1 Scott, SE NE NW Section 23-6-8, Hughes County, Oklahoma, is rigging up rotary. It is a north offset to Stanley Rogers' No. 1 Scott. Manahan is reported to have made a deal with Rogers for a free well in return for a half interest in Rogers' 460-acre block. The Rogers well is averaging 23 bbl. of oil and 5 of water on the pump.

SIMPSON-ROODHOUSE Drilling Co.'s No. 2 Stewart, NW SW SW Section 14-6-6, Konawa area, Seminole County, Oklahoma, had dolomite at 3,755-70 ft., total depth; acidized and was pumping 150 bbl. of oil and 300 bbl. of water a day.

ROBEY DRILLING was pulling rods and tubing in preparation of a second test on its No. 1 Community in Section 16-8n-3e, Fayette County, Illinois. Two 6-hour tests were run on the well, but it began to shale up, and it was decided to clean it out before considering it a completion. The well was estimated good for 150 to 200 bbl. a day from the Paint Creek stray sand. The same company is also completing two tests in the Salem field for the Texas Co. The wells are the No. 11 Stroup in Section 30-2n-2e and the No. 6 Hopkins, Section 5-1n-2e.

French Robertson, of Robertson & Bradford, drilling contractors of Haskell, Tex.; S. B. Roberts, drilling contractor and independent operator, of Abilene, Tex., and A. A. (Jack) Bradford, other member of the firm of Robertson & Bradford. The picture was taken on the rig floor of Robertson & Bradford's No. 2 V. B. Reeves, in the Bowles pool 6 miles east of Abilene in Taylor County

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Rocky Mountain Area

By
T. R. INGRAM

Mule Creek, Wyo., Deep Test Finds Oil in Minnelusa Sand

DENVER, Colo., Nov. 27.—A deep test in the West Mule Creek field, in Wyoming, 20 miles northeast of Lance Creek, being drilled by the Fall River Royalty & Oil Co., has a hole full of 31-gravity oil in the Minnelusa formation and is preparing to test. Lance Creek had two completions, Minnelusa Oil Corp. and MacKinnie Oil & Drilling Co.'s No. 6 Thompson, for 135 bbl. an hour from the Leo pay, and the same companies' No. 1 Thompson for 1,200 bbl. in 24 hours. The Montana-Dakota Utilities Co. completed a small gasser in the Billy Creek field in its No. 4 Rider, and the Stanolind Oil & Gas Co.'s No. 1 Government, in Little Buffalo basin, an old well drilling deeper, made 4,500,000 cu. ft. initial.

Cut Bank in Montana had three completions, the Texas Co.'s No. 1 Ammerman, an offset to a producer in the Sunburst being a dry hole; and R. C. Jeffries' No. 1 Clark extending the proven area ½ mile to the west. A. B. Cobb-T. T. Co.'s No. 1 Bilstad, an important wildcat, may make a small well. Kevin-Sunburst had one completion, a small well.

New operations include a Tensleep test in the Ferris district, Wyoming, by the Sinclair-Wyoming Oil Co.; one new operation in Lance Creek; one in La Barge district; two in the Osage field; one in Cut Bank; and three in Kevin-Sunburst.

NEW MEXICO

Development around the new B. H. Nolen's No. 1 Abbie Iles discovery, the area which has become known as the "High Lonesome" field, highlighted activity in the southeastern New Mexico district over the past week.

The Nolen well, SE cor. Section 17-16s-29e, pumped 45 bbl. of 36.5-gravity oil daily for completion gauge from sand drilled from 1,537 to 1,824 ft. with saturation having been from 1,803 to 1,824 ft., total depth. It is 8 miles northwest of the Grayburg-Jackson field. The field takes its name from the old High Lonesome ranch in the vicinity.

More than 2 miles east and slightly south of the discovery well, Frank E. Miller's No. 1 Frank Young, 1,650 ft. from the north and west lines of Section 23-16s-29e, was rigging up cable tools for spudding. Three miles south and nearly a mile east of the pool opener, C. B. Buck and others' No. 1 State is a new location, 330 ft. from the south and 4,290 ft. from the east lines of Section 31-16s-29e. Several tests in the area are nearing critical stages. Two and one-half miles northeast of the pool opener Dodson Drilling Co.'s No. 1 A. H. McElreath, SW cor. Section 3-16s-29e, is drilling below 1,265 ft. in anhydrite. Dave Elder's No. 1 Fred S. Hess, ¼ mile south and slightly east of the discovery, was shut down at 339 ft. in salt, awaiting casing. Pittman's No. 1 State, east offset to the discovery, was also shut down, total depth being 333 ft., awaiting casing.

The recently opened Halfway pool in western Lea County was defined on the south by Westlea Oil Co.'s No. 1-C Texas Co.-E. C. Cleveland, 330 ft. from the south and 1,980 ft. from west lines of Section 21-20s-32w. This test reportedly ran 53 ft. low, structurally, and was bottomed at 2,672 ft. in soft lime showing sulfur water. It is 2,310 ft. due south of the discovery well. Several tests in the new area are either drilling ahead toward the pay horizon or are in the testing

Eddy County

Addison's No. 1 Sullivan, 660 ft. from N and E lines, Sec. 29-18-31. Drlg. 2,680 ft.
Kersey & Co.'s No. 1 Creek, 330 ft. from N and 1,650 ft. from W lines, Sec. 23-18-30. Drlg. 2,935 ft.
Knox & Brewer's No. 1 Fred Hess, 330 ft. from N and W lines, Sec. 21-16-29. C.&P.
Powell & Mathew's No. 1 Levers, 1,980 ft. from S and W lines, Sec. 33-18-29. Drlg. 1,910 ft.
Everts' No. 1 Greer, SE cor. Sec. 31-16-31. W.O.C. 2,748 ft.
L. R. Manning's No. 1 Patton-McClay, 330 ft. from N and 1,650 ft. from E lines, Sec. 21-18-30. Drlg. 2,465 ft.
G. A. Grober's No. 1 Wright, 1,980 ft. from N and W lines, Sec. 25-18-29. Tstg. S.O.&G. 1,382 ft.; est. 10 B.O.P.D.
McClure & Swift's No. 1 State, 660 ft. from N and 1,980 ft. from E lines, Sec. 20-19-29. Drlg. 1,907 ft.
Mac T. Anderson's No. 1 L. J. Root, 660 ft. from S and 660 ft. from W lines, Sec. 27-9-30. Drlg. 1,575 ft.
G. R. Burke's No. 1 State, NE NE NW Sec. 36-16-24. Drlg. 2,060 ft.
Saunders' No. 1 Murdock, NW NW SW Sec. 4-18-29. Drlg. 2,640 ft.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. S.D.R. 440 ft.
J. R. Cones et al's No. 1 Saunders, SE SE NW Sec. 13-17-27. S.O. 505 ft.; S.D.O. 600 ft.
Plains Prod. Co.'s No. 1 Massie, C SW SW Sec. 27-18-29. S.D.R. 3,173 ft.
L. E. Elliott's No. 1 Elliott, SE SE SE Sec. 24-18-29. S.S.O. 3,255-75 ft.; S.D.O. 3,435 ft.
Franklin Pet. Corp.'s No. 1 Masteller, NW NW NE Sec. 7-18-30. Drlg. 2,730 ft.
Franklin Pet. Corp.'s No. 1 Cappedge, NW SW NW Sec. 5-18-30. S.S.G. 3,118-23 ft.; drlg. 3,210 ft.
J. W. Elliott's No. 1 Cannon (O.W.D.D.), C SW SE Sec. 4-19-30. Drlg. 3,015 ft.
Trojan Oil Co.'s No. 1 Grant, SW SW NE Sec. 33-20s-25e. S.O. 1,530 ft.; S.D.R. 1,580 ft.
Dodson Drlg. Co.'s No. 1 State, 2,310 ft. from N and 330 ft. from E lines, Sec. 17-16-29, ½ mile N of Nolen's No. 1 Iles discovery well. C.&P.
Pittman's No. 1 State, 330 ft. from SW cor. Sec. 17-16-29, east offset to Nolen pool opener. W.O.C. 333 ft.
Dodson Drlg. Co.'s No. 1 A. H. McElreath, 330 ft. from S and W lines, Sec. 3-16-29, 2½ miles NE of Nolen pool opener. Drlg. 1,265 ft.

Chaves County

H. E. Yates' No. 1 Johnson, 660 ft. from N and 1,980 ft. from W lines, Sec. 24-15-28. S.D.R. 1,855 ft.
Meither's No. 1 J. W. Smith, 990 ft. from S and E lines, Sec. 30-11-25. W.O.C. 840 ft.
G. H. Cowden's No. 1 Brunson, 330 ft. N and W lines, Sec. 27-9s-30e. C.&P.
Caudill & French's No. 1-A Smith (O.W.D.D.), Sec. 1-4-29. S.D.R. 3,686 ft.
E. J. Fisher's No. 1 Hill, CSL S½ Sec. 8-15-25. S.D.O. 850 ft.
Tarkenton Bros.' No. 1 Peters, SE SE NW Sec. 33-11-25. S.S.O. 1,280-85 ft.; S.D.O. 1,324 ft.

Dona Ana County

Picacho O. & G. Co.'s No. 12 Armstrong, Sec. 15-23s-1w. W.O. csg. 2,620 ft.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. S.D. 2,785 ft., T.D.; repairs.

Luna County

O. D. Berry's No. 1 Berry, SE SE SW Sec. 33-22s-10w. S.D.O. 1,000 ft.

Lea County

Barefield & Brooks' No. 1 Walker, 1,980 ft. from N and 660 ft. from E lines, Sec. 5-18-32. C.O. 3,660 ft.; flwd. by heads from sat. 3,685-3,700 ft.
Leonard Oil Co.'s No. 1 Ginsberg, 1,980 ft. from N and 660 ft. from W lines, Sec. 7-25-38. Drlg. 2,905 ft.
J. D. Barefield's No. 1 Stroup, 1,980 ft. from N and E lines, Sec. 12-18-32. W.O. mch.
Culbertson & Irwin's No. 1 Lea, 660 ft. from N and E lines, Sec. 8-19-32. U.R. 640 ft.
Frank Farley's No. 1-A State, Sec. 18-21s-30e. Prep. drill plug; sat. 2,629-31 ft.; new pool opener; flwd. 1,000 B.O. in 18 hrs.; est. 1,500 B.O.P.D.; S.I. storage.
Argo Oil Corp.'s No. 1 Texas Co.-State, west off to Westlea Oil Co. pool opener. S.I. storage; swbd. 100 B.O.P.D.; T.D. 2,657 ft.
Westlea Oil Co.'s No. 1 Texas Co.-Cleveland, 2,310 ft. S of Westlea pool opener and 330 ft. from N and 1,980 ft. from W line, Sec. 21-20s-32e. Drlg. 2,636 ft.
Continental Oil Co.'s No. 1-A-15 Langston, 660 ft. from S and W lines, Sec. 15-20s-32e. ¾ mile SE of Westlea pool opener. Drlg. plug; 10-in. csg. 423 ft.

Otero County

Ernest's No. 1 Ernest, Sec. 20-25-7. Drlg. 2,495 ft.
Otero Oil Co.'s No. 1 State, SE NW Sec. 5-22-10. S.D. engine, 700 ft.

SOUTHEAST NEW MEXICO COMPLETIONS

Eddy County

R. R. Woolley's No. 2-D Woolley, Section 31-17-30, flowed 430 bl. daily after shot in pay from 2,835-55 ft.
R. W. Fair's No. 2 Brainard, Section 10-18-29, flowed 240 bbl. in 6 hours from pay at 2,593-2,605 ft.
E. S. McAuliffe's No. 1 Coates, Section 3-18-32, temporarily abandoned at total depth of 1,029 ft.
Sanders Brothers' No. 2 Travis, Section 17-18-29, flowed 45 bbl. daily after shot in pay section from 2,510-2,693 ft.
Underwood's No. 3-P Guy, Section 9-18-29, flowed 180 bbl. in 12 hours after shot in pay at 2,508-35 ft.
Underwood's No. 4 Miller, Section 5-18-29, flowed 96 bbl. daily after shot in pay section at 2,557-2,654 ft.

Lea County

Anderson-Prichard Oil Corp.'s No. 3-A-32 State, Section 32-24-37, flowed 41 bbl. in 12 hours naturally from pay at 3,475-3,575 ft.
Continental Oil Co.'s No. 6-B-27 Jack, Section 27-24-37, flowed 70 bbl. in 2 hours after shot in pay at 3,450-3,536 ft.
Magnolia Petroleum Co.'s No. 46 State-Bridges, Section 13-17-34, flowed 138 bbl. in 11 hours after shot in pay at 4,550-4,700 ft.
Magnolia Petroleum Co.'s No. 47 State-Bridges, Section 24-17-34, flowed 224 bbl. in 16 hours naturally from pay at 4,400-4,680 ft.
Phillips Petroleum Co.'s No. 34 Santa Fe, Section 26-17-35, flowed 170 bbl. naturally in 6 hours from pay at 4,400-4,567 ft.
Cockburn Oil Co.'s No. 3-B Baish, Section 28-17-32, flowed 200 bbl. daily after shot in pay from 3,715-76 ft.
Gulf Oil Corp.'s No. 1-C Christmas, Section 18-22-37, flowed 912 bbl. in 8 hours naturally from pay at 3,680-3,730 ft.
Gulf Oil Corp.'s No. 2 G. E. Cooper, Section 11-24-36, flowed 310 bbl. daily after acid in pay at 3,507-13 ft.
Ohio Oil Co.'s No. 11 State-McDonald, Section 13-22-36, flowed 450 bbl. in 10 hours naturally from pay at 3,660-3,739 ft.
Peters' No. 1-H State, Section 34-22-37, flowed 750 bbl. daily after shot in pay from 3,555-3,648 ft.
Repollo Oil Co.'s No. 6-D State, Section 12-22-36, flowed 290 bbl. in 21 hours, naturally, from pay at 3,690-3,750 ft.
Rowan & Penrose's No. 1 Miller, Section 26-17-32, flowed 150 bbl. daily after shot in pay at 3,816-4,029 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc.'s No. 2 North Albuquerque, NE SE NW Sec. 19-11n-4e. Drlg. 4,650 ft.

San Juan County

Congress Oil Co.'s No. 2 Government, Section 18-28n-11w, Kutz Canon district, was completed at 2,015 ft. for 500,000 cu. ft. of gas per day.

Kutz Deep Test, Inc.'s No. 1 Government, which is intended as a test to the Point Lookout sand in the Kutz Canon district, has resumed operations, and is moving in 12½-in. to set at 560 ft. Location is a mile to the east of the Kutz Canon Oil & Gas Co.'s No. 1 Day, the only well in the field to reach the Point Lookout sand. At 4,400 ft. it went into the sand in 1936 and found a showing of high-gravity oil, but was unable to complete on account of having run out of hole. It was plugged back to the Picture Cliff at 2,110 ft. and completed for 2,850,000 cu. ft. of gas per day. Present plans in the new test are to carry the 12½-in. casing through the Farmington series and then land the 10-in. on top of the Picture Cliff, and to reach the objective with the 8-in.

Kutz Deep Test, Inc.'s No. 7 Govt., C NW NW Sec. 28-28n-10w. T.D. 560 ft.; W.O. 12½-in.
Angel Peak Oil Co.'s No. 8 Govt., C NW SW Sec. 13-28n-11w. Drlg. 1,720 ft.
Continental Oil Co.'s No. 11 Rattlesnake, NE NW NE Sec. 2-29n-19w. Drlg. L. at 5,877 ft.

San Miguel County

Southwest Drlg., Inc.'s No. 1 Conchas, NW NE Sec. 34-17n-21e. Drlg. 2,300 ft.
Ben E. Keith's No. 1-X McCune, SW SE SW Sec. 32-16n-12e. Drlg. 200 ft. in new hole.

Valencia County

C. A. Grober et al's No. 1 Fuqua, NE NE Sec. 19-5n-3e. S.D. 3,850 ft. to run 6⅝-in.

COLORADO

Adams County

Derby Dome O. & G. Co.'s No. 2 Baxter, C SE SW Sec. 2-3s-66w. Drlg. 1,885 ft.; will stdg. at 2,000 ft.

Custer County

Henry Donnelly's No. 1 Hodge, SE NE Sec. 26-21s-69w. S.D. 1,200 ft.

El Paso County

F. F. Hintze et al's No. 1 State, CEL SE SE Sec. 16-11s-66w. T.D. 540 ft.; U.R. 13-in. for W.S.O.

Fremont County

T. E. Maloney's No. 1 SE NW Sec. 34-19s-69w. S.D. 1,850 ft. after rng. 1,300 ft. of 5⅝-in. and 550 ft. of 4½-in.
Waterville Oil Co.'s No. 2 Persons, CWL NE NE Sec. 17-19s-69w. S.D. 330 ft.

La Platte County

Nick Spatter's No. 1-X Bryce, C SW SW Sec. 31-33n-9w. T.D. 2,522 ft. in sd.; M.I. 5⅞-in.

Larimer County

L. R. Steele et al's No. 1 Bund, NE SW Sec. 7-3n-69w. Drlg. 1,170 ft.
Continental Oil Co.'s No. 1 Meyers, SW SE SW Sec. 19-8n-68w, T.D. 5,206 ft.; P.B. to 4,686 ft.; shot with 20 qt. at 4,464-4,686 ft.; W.O. pmp. equip.

Las Animas County

Hulme-Johnson-Allison's No. 1 Azar, SE SE NW Sec. 27-34n-58w. S.D. 2,190 ft.

Moffat County

Great Divide Pet. Co.'s No. 1 Wyatt, SE¼ Sec. 6-9n-92w. Spdg.
Cooperative O. & G. Co.'s No. 1 Gossard, CWL E½ E½ Sec. 29-5n-93w. Spd. and S.D.; will skid mch. and bld. standard rig.
Steamboat Springs Synd.'s No. 1 Sutton, NE NE SW Sec. 1-5n-96w. S.D. 2,125 ft. for csg.; H.F. brksh. wtr. in sd. (probably Sundance); T.D. 1,780 ft.

Park County

South Park Oil Co.'s No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. 7,082 ft.

Rio Blanco County

Texas Co.-California Co.'s No. 3 Unit, NE NE NE Sec. 27-3n-94w. T.D. 765 ft.; cmtd. 13⅜-in. at 750 ft. and S.D. for the winter.
Buford Oil Co.'s No. 1 Govt., C SW SW Sec. 16-1n-91w. Drlg. 4,128 ft. in Malos (Amsden) var. sh. and streaks of L.

Routt County

L. C. Craig and L. C. Moore's No. 1-X Irwin, C SW NE Sec. 33-7n-85w. Drlg. 2,090 ft.

Washington County

Thurman Oil Trust's No. 1 Ruby, NW NW SW Sec. 3-5s-52w. Drlg. 450 ft.

WYOMING

Big Horn County

Yale Oil Corp.'s No. 2 Jones, Lot 59, approx. CEL NE SE Sec. 29-56n-97w. Drlg. 2,580 ft.
Frank S. Scott's No. 1 Robertson, SE SE SE Sec. 6-54n-93w. Drlg. below 645 ft.

Carbon County

Sinclair-Wyoming Oil Co. has released a location for a rotary test to the Tensleep in the Ferris district in its No. 4-E. This area has been producing from shallow sands in small quantities for several years. No deep test has been drilled in this immediate vicinity, the nearest being in the SW NW Section 26. The large wells in the Tensleep in the Wertz and Mahoney dome fields in this general area make this operation attractive.

Sinclair-Wyoming Oil Co.'s No. 4-E, C SE SW Sec. 29-26n-87d. Loc. (first report).
Ohio Oil Co.'s No. 15 Harrison & Cooper, SE NE NW Sec. 2-19n-78w. Cmtd. 9⅝-in. at 136 ft.; W.O.C.
Frank M. Johnson's No. 1 Govt., C SE SE Sec. 22-24n-88w. Drlg. 875 ft.
Martin & Gaylord's No. 1 Horne Bros., CNL NW SW Sec. 22-22n-78w. Drlg. 1,145 ft.; S.G.
Ohio Oil Co.'s No. 1 University, SW SW SW Sec. 26-20n-78w. T.D. 3,579 ft.; redrld. to 3,476 ft.; tstg.
Albert Dev. Synd.'s No. 1 Boeke, SW NW Sec. 18-25n-79w. Drlg. hd. rock 500 ft.; no W. to this depth.
Producers Oil Co.'s No. 1 Lake Valley CNL Sec. 14-20n-88w. Drlg. 3,730 ft.

Converse County

New Era Fuel Co.'s No. 1 Pestal, SE NE NE Sec. 32-32n-69w. Drlg. 568 ft.; 6 bbl. per day at 533 ft.
Blue Ridge Oil Co.'s No. 1 Prokesh, SW NW SE Sec. 29-32n-69w. Drlg. 615 ft.

Fremont County

Tropic Oil Co.'s No. 1 Govt., C SE SW Sec. 34-27n-90w. T.D. 3,495 ft.; U.R. 4¾-in. to bttm. to tst. S.O. in Lakota.
Yellowstone Oil Co.'s No. 6 Govt., C NE NE Sec. 33-38n-93w. Spdg.
Sinclair-Wyoming Oil Co.'s No. 11 Sand Draw Unit, CSL NE NE Sec. 15-32n-95w. 4,246 ft. in Morrison.
Consolidated Oil Properties' No. 3 Ewart, C SW SE Sec. 16-1n-1w. T.D. 1,530 ft.; C.O. at 780 ft. after shot to tst. S.O. at 840-845; W. in Tensleep at 1,502 ft.

Hot Springs County

John W. Selby's No. 1 Kyne, SW NW Sec. 22-43n-92w. Drlg. 443 ft.; 8¼-in. at 405 ft.; W. at 295-305 ft.
J. W. Bales' No. 1 Govt., CWL NW SE Sec. 21-42n-90w. T.D. 805 ft.; M.I. 12½-in. csg.

Johnson County

Montana-Dakota Utilities Co.'s No. 4 Fred Rider, SE SE NW Section 17-48n-82w, Billy Creek gas field, was completed in the Frontier at 3,255 ft. for 680,000 cu. ft. of gas per day. It is an offset to an old producer which originally came in for 70,000,000 cu. ft.

Lincoln County

H. C. Harris et al's No. 1 Govt., SE NW NW Sec. 23-21n-117w. Drlg. 2,410 ft.

Natrona County

General Pet. Corp.'s No. 1-21-G, NW NW NW Sec. 21-35n-77w. R.U.R.
Iron Creek Oil Co.'s No. 1 CWL SW NW Sec. 11-32n-82w. T.D. 721 ft.; trying to drill by lost bit; Iron Creek dist.
Continental Oil Co.'s No. 1 McGrath, C NW SW Sec. 15-34n-78w. Drlg. r.b. 7,140 ft.
Connelly Drlg. Co.'s No. 1 State, SW SW NW Sec. 36-36n-81w. Drlg. 1,450 ft.; 8¼-in. at 1,408.
Summit Oil Co.'s No. 2 Govt., NW NE NE Sec. 21-33n-80w. S.D. 960 ft.

Niobrara County

Attention was directed to the West Mule Creek area, 20 miles to the northeast of the Lance Creek field, when the Fall River Royalty & Producers Co.'s No. 1 Government, CSL SE SE Section 35-40n-61w, was reported standing with considerable oil in the hole and preparing to make a test. Last reported depth was 2,662 ft., at which depth it was reported to have a good show of oil and was preparing to run the 8¼-in. before drilling in. Tanks are being erected and tubing is being run. The horizon probably is near the base of the Minnelusa, the producing formation of the Leo sand at Lance Creek. West Mule Creek has shallow production at 300 to 400 ft. in the Dakota series. No. 1 Government is a little more than half a mile north of a test drilled by this company and associates in the NW NE SE Section 2-39-61 in 1935. Last-named well pumped 12 bbl. per day at 2,855 ft. with the 4¾-in. at 2,809 ft. without acidizing, but was not considered a fair test of the deep horizon on account of the condition of the hole. The oil in this well tested 31 gravity. The late C. T. Lupton, who spotted the old well, logged the pay either in the base of the Minnelusa or the top of the Madison lime. These are the only deep wells drilled on the structure. Reports that the new well is good for 1,000 bbl. per day are believed to be premature as best information is to the effect that no test has been made.

Lance Creek had two completions, the best one being Minnelusa Oil Corp.-MacKinnie Oil & Drilling Co.'s No. 6 Thompson, NE NW SE Section 7-35n-65w, in the southwestern part of the field. It had saturated sand at 5,474-5-5,506 ft., which also is the total depth, and flowed 135 bbl. per hour through the tubing. The elevation is 4,472 ft.

The other completion was the same companies' No. 1 Thompson, NE NW NE Section 7-35-65, which made 55 bbl. per hour through the tubing at 5,265 ft., total depth, from the Leo sand, after acidizing. It flowed 1,200 bbl. on a 24-hour gage. This was an old producer in the Sundance which was completed in 1936 for 800 bbl.

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DU PONT

GASOLINE ANTIOXIDANTS

per day on a 1-in. bean, and recently drilled deeper. Top of the Leo was at 5,209 ft.

One new operation was reported.

Minnelusa Oil Corp.'s No. 1-B Joss, NE SW NW Sec. 7-35n-65w. R.U.R. (first report).
Minnelusa Oil Corp.'s No. 4 H. & M., NE NE SE Sec. 7-35n-65w. Rdy. to spd.
Ohio Oil Co.'s No. 4 Cash-1, NW NE SW Sec. 4-35n-65w. Cmtd. 13-in. at 292 ft.; W.O.C.
Continental Oil Co.'s No. 5-B Diehlman, NW SE NE Sec. 7-35n-65w. Drlg. 3,840 ft.
Minnelusa Oil Corp.-MacKinnie O. & D. Co.'s No. 7 Thompson, SE NW NE Sec. 7-35n-65w. Drlg. 2,369 ft.; 13-in. at 335 ft.
Argo Oil Co.'s No. 1 Ong, SE SE SW Sec. 31-36n-65w. Drlg. 2,960 ft.
A. B. Cobb & Co.'s No. 5 Novick, NE NE NW Sec. 6-35n-65w. Drlg. 2,279 ft.
Ohio Oil Co.'s No. 13 Carrie Putnam, C NW NW Sec. 4-35n-65w. Drlg. 2,940 ft.
Continental Oil Co.'s No. 6 Sam Joss, NW NW NE Sec. 6-35n-65w. Drlg. 3,785 ft.
Continental Oil Co.'s No. 6-A Diehlman, NW NE NE Sec. 7-35n-65w. T.D. 4,058 ft.; fsg. D.P.
Continental Oil Co.'s No. 5-A Diehlman, SE NW NW Sec. 8-35n-65w. Drlg. 5,695 ft.
H. D. Moore et al's No. 1 Berggren, SE NW Sec. 23-35n-63w. T.D. 2,242 ft., T. Leo 2,228 ft.; rng. 7-in.
Argo Oil Co.'s No. 11-B Elliott, NE NE SW Sec. 5-35n-65w. T.D. 5,481 ft.; T. Leo 5,260; crd. sat. in second bench at 5,472-81.
F. F. Hintze et al's No. 1 Wright-Govt., C NW SE Sec. 30-36n-63w. T.D. 4,964 ft.; cmtd. 7-in. at 4,617 ft. and perf. to test.
Fall River Prod. & Roy. Co.'s No. 1 Govt., CSL SE SE Sec. 35-40n-61w. T.D. below 2,662 ft.; prep. to tst.
Continental Oil Co.'s No. 5 Apex-3, SE NE SW Sec. 34-36n-65w. T.D. 5,460 ft.; tstd. 10 B.P.H. after acd. in Leo sd.; will D.D. to Joss sd.
Continental Oil Co.'s No. 4 Apex-1, NW NE NE Sec. 34-36n-65w. T.D. 5,330 ft.; flowed 125 bbl. in 24 hrs. from Leo sd.; will D.D. to Joss sd.

Park County

Tne Stanolind Oil & Gas Co.'s No. 1 Government, NE cor. Section 2-47n-100w, Little Buffalo basin gas field, was completed at 1,710 ft. in the Frontier, after plugging back from 1,873 ft. for 4,500,000 cu. ft. per day. It was an old well deepened from 1,702 ft.

Mule Creek Oil Co.'s No. 1, Lot 51, Sec. 9-46n-101w. Drlg. 1,850 ft.
Dry Creek Oil Co.'s No. 1 Govt., Lot 2 (NW NE SW) Sec. 9-50n-100w. T.D. 1,157 ft.; M.I. mch. to D.D.

Platte County

Glentop Expl. Co.'s No. 1 Millikan, NE SE NE Sec. 18-30n-67w. T.D. 626 ft.; setting 8¼-in. on bttm. for W. S.O.

Sublette County

Texas Co.'s No. 2-E, SW NW Sec. 27-27n-113w. Loc. (first report).
North La Barge Oil Co.'s No. 2 Govt., CEL SE NE Sec. 28-27n-113w. Spdg. (first report).
Marvel Oil Co.'s No. 1 Govt., NE NE SE Sec. 28-27n-113w. R.U.C.T.
North La Barge Oil Co.'s No. 1 Govt., SW NE SE Sec. 28-27n-113w. T.D. 455 ft.; rng. 12½-in. (cor. loc. & No.).
Wyoming Pet. Corp.'s No. 1 Budd, C NE NE Sec. 10-29n-113w. S.D. 2,870 ft.; repairs.
Wyoming Pet. Corp.'s No. 2 Govt., SE cor. Sec. 3-29n-113w. Spdg.
California Co.'s No. 1 Unit, 1, C SW NE Sec. 14-31n-109w. T.D. 10,003 ft.; cmtd. 7-in. at 8,509 ft. (C.D.); tstg.

Sweetwater County

Vermilion Oil Co.'s No. 2 Govt., SW cor. Sec. 7-12n-99w. Drlg. below 1,500 ft.
Sinclair-Wyoming Oil Co.'s No. 88-A, NW SE SW Sec. 11-26n-90w. Drlg. 1,542 ft.
Sinclair-Wyoming Oil Co.'s No. 87-A, SW SE SE Sec. 3-26n-90w. Drlg. 2,199 ft.
Wyoming-Calif. Pet. Co.'s No. 2 Govt., CWL NW SW Sec. 24-17n-104w. T.D. 2,885 ft.; fsg. csg. shoe.

Uinta County

Stove Creek Oil Co.'s No. 1 Govt., NE SW NE Sec. 26-14n-119w. T.D. 2,010 ft.; U.R. 8⅝-in. to bttm.

Weston County

Charles G. Martens' No. 20, NW NW NE Section 19-46n-63w, Osage field, is an average producer in sand at 1,336-51 ft. after being shot with 30 qt. It is a completion.

Konter Brothers' No. 1, SE cor. Section 6-46n-63w, was dry and abandoned at 650 ft. Sand at 640-49 ft.

Osage Trust Co.'s No. 5, SW SE NW Sec. 13-46n-64w. Loc. (first report).
Whedon Oil Co.'s No. 20, NW NW SE Sec. 16-46n-64w. Drlg. 60 ft. (first report).
John Brorphy's No. 1 Hansen, NW NE NW Sec. 13-44n-63w. M.I.M.
Gose Oil Synd.'s No. 1, NE cor. Sec. 28-47n-63w. Cmtd. 4¾-in. at 4,918 ft.
Hugh Updike's No. 4 CEL NE NE Sec. 36-46n-64w. Drlg. below 1,400 ft.
Bruce C. Teeter's No. 1 State, SW SW SE Sec. 36-32n-61w. Drlg. 2,330 ft.

MONTANA

Carbon County

Ohio Oil Co.'s No. 9 Souders, C NE SW Sec. 2-7s-21e. T.D. 5,511 ft.; tstg.
Minnelusa Oil Corp.-Henderson Prod. Co.'s No. 1-H-11-Elk-11, SE SE NW Sec. 35-9s-23e. T.D. 2,486 ft.; U.R. 8⅝-in. to 2,033 ft. and cmtd.
R. C. Tarrant's No. 2 McKay, C SE NW Sec. 4-6s-18e. T.D. 2,525 ft.; U.R. 8⅝-in. to set at 2,355 ft.; S.O. in Dakota 2,450-80 ft.
R. C. Tarrant's No. 2 Heare, NW SE NW Sec. 14-6s-19e. T.D. 1,400 ft.; U.R. 10-in. to land at 600 ft.
Miracle Oil Co.'s No. 2 Govt., CWL NE SE Sec. 3-6s-23e. S.D. 2,338 ft. (C.D.).

Choteau County

Security Pet. Corp.'s No. 1 Johnson, C NE NE Sec. 23-26n-3e. T.D. 1,991 ft.; U.R. 6⅝-in. to set below Sunburst sd.

Flathead County

Clark W. Beauchamp's No. 1, CSL SW SW Sec. 2-27n-20e. S.D. 150 ft.; to M.I. rig.

Fergus County

E. & M. O. & G. Co.'s No. 2 fee, CEL SE SE Sec. 4-22n-18e. Spdg. 30 ft.; (first report).
Baugham & Singley's No. 1 Skaggs, C NW SW Sec. 7-15n-20e. T.D. 1,090 ft.; rng. 3⅞-in. to bttm.

Hill County

J. Gudgel's No. 1 Mancin, SE NE NW Sec. 19-37n-15e. Drlg. 1,160 ft.; S.G.

Glacier County

Cut Bank had three completions and one new operation.

The most interesting completion was a dry hole in the Texas Co.'s No. 1 Ammerman, CWL SW SE Section 26-36n-6w, in the northern part of the field. It was a northeast offset to the Glacier Production Co.'s No. 1 Larson, which swabbed 165 bbl. first 24 hours from the Sunburst in July of this year, one of the few wells in the field producing from that horizon, and ¾ mile west of Cobb-Pardee's No. 1 Stuff, in Section 25, which produced 9,000,000 cu. ft. of gas from the Moulton sand. No. 1 Ammerman was drilled to 3,158 ft. The Sunburst at 3,000-05 and 3,045-68 ft. was dry. The upper Cut Bank was at 3,080-3,117 ft. and lower Cut Bank at 3,128-48 ft. Latter carried water.

R. C. Jeffries' No. 1 Clark, C SW NW Section 34-35n-6w, joint with the Yukon Oil Co., marked an extension of the proven area nearly ½ mile on the west side. It is inside the Blackfeet Indian reservation. It was completed at 2,978 ft. and swabbed 65 bbl. first 6 hours and then swabbed 3 bbl. an hour. The Sunburst at 2,920-32 ft. had a good show of oil. The upper Cut Bank was at 2,940-48 ft. and lower Cut Bank at 2,948-73 ft. Main pay was at 2,955-70 ft. The 7-in. is at 2,923 ft.

A. B. Cobb-T. T. Co.'s No. 1 Bilstad, C NW SE Section 4-36n-5w, an important wildcat, was completed, but has not been tested. Total depth is 2,880 ft. The Moul-

(Continued on Page 104)

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Kansas Developments

By
DAL DALRYMPLE

Stoltenberg Area Extended; Big Producer for Bornholdt

Extension of the Stoltenberg, Ellinwood and Balta pools, testing of a pool opener in Barton County, and completion of the largest producer to date in the Bornholdt pool were features of field operations in Kansas the past week. Several new wildcat tests were started.

Duwe & Farris' No. 1 Boye, C W½ SW SW Section 9-16-10w, gave promise of extending the Stoltenberg pool in Ellsworth County ½ mile northward. It found saturated Arbuckle lime at 3,364-70 ft., total depth. Five-inch pipe was cemented at 3,365 ft. Cable tools were being rigged up preparatory to drilling plug and completing.

Wilson, Fortier and Alpine Oil & Royalty Co.'s No. 1 Duncan, CSL SE NW Section 8-20-11w, nearly 1 mile west of the Ellinwood pool, Barton County, found Arbuckle lime at 3,297 ft., total depth 3,306 ft., and oil rose 2,700 ft. in the hole. Operators planned to deepen a few feet before completing. It may be classed as an extension of the Ellinwood pool or as the discovery of a new pool.

R. E. Day and others' No. 1 Feltes, SE SE NE Section 14-16-12w, wildcat 1 mile west of the West Prusa pool, Barton County, had Arbuckle lime at 3,342-45 ft., total depth, and made temporary potential of 47 bbl. of oil daily. The new area may be known as the Coal Creek pool.

The Apache Exploration Co., of Houston, Tex., was reported to have started seismograph exploration in Washington and Marshall counties in northeastern Kansas, but west of the Forest City basin area. Several thousand acres in the two counties between the Little and Big Blue Rivers have been leased for some time. Albert L. Ladner, the geologist who located the Falls City, Neb., discovery well, is Apache party chief and W. L. Parker is field operator.

Ogden S. Jones, geologist with the Kansas State Board of Health, has called attention of southeastern Kansas producers to the following notice:

"Gov. Payne Ratner appeals to oil operators in southeastern Kansas to handle produced brines with extreme care at all times, but especially during this period of drought. Streams have ceased flowing in that portion of the state, and farmers and stockmen are dependent upon water holes in the stream beds for supplies. It can readily be seen what the careless handling of salt water would do to the remaining inadequate supply of fresh water. Municipal supplies also are at stake in many places as most of the towns in the area depend upon surface water. Oil operators are urged to cooperate with the state Board of Health in disposing of the brine."

Russell County

Stearns and Vernon Oil & Gas Co.'s No. 2-C Olson, NE NE NW Section 27-14-14w, Gurney area, had Lansing lime at 3,069-76 ft., total depth, flowed and pumped 1,143 bbl. of oil in 8 hours and made daily potential of 3,428 bbl.

Braden & McClure's No. 1 Herbel, NE NW NW Section 35-14-14w, topped granite wash at 3,173 ft., total depth 3,185 ft., pumped 741 bbl. of oil in 8 hours and made potential of 2,221 bbl. in 24 hours.

Coralena Oil Co.'s No. 6 Sellens, NW NW SE Section 20-15-13w, Trapp pool, found Arbuckle lime at 3,315-20 ft., total depth, and made daily potential of 1,772 bbl. of oil.

J. J. Hall's No. 6 Landon, NW SE SE Section 11-15-14w, was dry and abandoned at total depth of 3,426 ft.

Cities Service Oil Co.'s No. 5-D Tittle, NE cor. Section 14-15-14w, was bottomed in Lansing-Kansas City lime at 3,328 ft., pumped 294 bbl. of oil in 8 hours and made potential of 882 bbl. of oil daily.

Johnson & Klink's No. 1 Brown, SE NE NE Section 31-14-14w, Balta pool, was acidized and pumped 105 bbl. of oil and 105 bbl. of water in 24 hours from Arbuckle lime at 3,311-23 ft., total depth. It extends the pool ¼ mile northward.

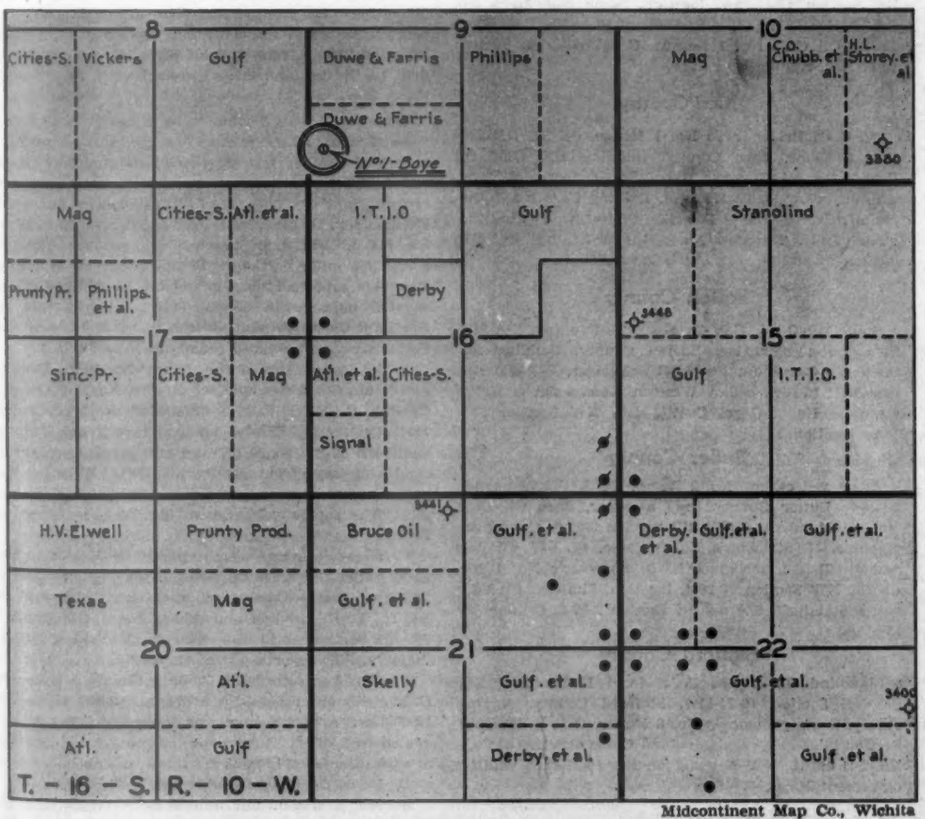
Phillips Petroleum Co.'s No. 5 Mollie, C E½ NE NE Section 35-15-14w, Schneider pool, Trapp district, penetrated Arbuckle lime at 3,341-45 ft., total depth, and made echometer potential of 812 bbl. of oil daily, after acid treatment.

Stanolind Oil & Gas Co.'s No. 5-A Krug, C W½ NE NE Section 27-14-14w, Gurney area, on retest after acid treatment, pumped 466 bbl. of oil in 8 hours, making potential of 1,400 bbl., from Lansing lime at 2,977-3,075 ft.. total depth 3,078 ft. It previously was announced as making original potential of 206 bbl. of oil at 3,012 ft. in Lansing lime.

Same company's No. 6-A Krug, SE SE NE Section 27-14-14w, made original potential of 412 bbl. of oil after acid at 2,992-94 ft. in Lansing lime. It was deepened to 3,051 ft. in lime and swabbed and flowed 187 bbl. of oil in 3 hours. It was acidized with 8,000 gal. and on retest pumped 551 bbl. of oil in 8 hours, making potential of 1,654 bbl.

Hays & Anschutz' No. 2 Landon, SE NW SE Section 11-15-14w, was dry and abandoned at 3,383 ft., total depth. Cities Service Oil Co. and others' No. 4 Krug A, C E½ E½ NW Section 24-15-14w, was dry and abandoned at 3,369 ft., total depth.

Coralena Oil Co.'s No. 1 Cora Trapp, SW SE NE Section 29-15-13w, had initial yield of 69 bbl. of oil from Arbuckle lime at 3,334-38 ft., total depth. It was acidized, made potential of 7,091 bbl. and was completed for adjusted potential of 3,000 bbl.



Midcontinent Map Co., Wichita

A ½-mile northward extension of the Stoltenberg pool, Ellsworth County, was indicated at Duwe & Farris' No. 1 Boye, Section 9-16-10w, where saturated Arbuckle lime was found

Estimated Daily Production

Estimated daily production for Kansas for the week ended November 25, and for the preceding week was as follows:

	Barrels	
	Nov. 25	Nov. 18
Oxford City	750	800
Burrton	11,050	12,150
Ritz-Canton	4,300	4,400
Graber	3,350	2,900
Hollow-Nikkel	2,250	2,450
Lerado	1,000	1,100
Voshell	1,650	1,750
Wellington	2,150	2,250
Ellsworth County:		
Lorraine	1,750	1,900
Other pools	1,785	1,890
Rice-Barton counties:		
Bloomer	3,700	3,450
Chase	3,900	4,600
Geneseo	3,400	4,150
Raymond	900	400
Silica	12,850	12,900
South Silica	2,550	2,700
Keesling	1,000	1,150
Wherry	4,100	3,650
Miscellaneous Rice	5,570	4,555
Miscellaneous Barton	9,950	7,405
Russell County	28,085	26,150
Sedgwick County	3,250	3,450
Ellis County:		
Bemis	6,550	6,600
Miscellaneous	5,555	3,670
Kingman County	680	770
Stafford County	8,270	7,795
Greenwood County	8,900	9,000
Eldorado	7,500	7,550
Other fields	38,105	37,965
Total Kansas	184,850	179,500

Rice County

C. L. Carlock's No. 1 Renollet, SE SE NE Section 36-

20-8w, Wherry field, Rice County, pumped 144 bbl. of 38.5-gravity oil initially in 12 hours from conglomerate at 3,317-23 ft., total depth.

Grace Oil Co.'s No. 6-A Gossman, C W½ NE NE Section 8-21-7w, flowed 626 bbl. of oil in 8 hours and made potential of 1,878 bbl. from conglomerate at 3,349-69 ft., total depth.

C. L. Carlock's No. 1 Culbertson, C E½ NE SE Section 22-21-7w, South Wherry pool, had conglomerate at 3,393-95 ft., total depth, pumped and flowed 334 bbl. of oil in 8 hours and made daily potential of 1,003 bbl.

Gulf Oil Co.'s No. 1 Drake, NE NE SW Section 31-20-7w, Wherry field, pumped and flowed 203 bbl. of oil in 8 hours, made potential of 608 bbl., with 2,000,000 cu. ft. of gas. It found conglomerate at 3,313-24 ft., total depth.

McPherson Drilling Co.'s No. 1-B Cramm, SW cor. Section 10-19-9w, Chase-Cramm area, found Arbuckle lime at 3,194-3,211 ft., total depth, was acidized, pumped 72 bbl. of oil in 8 hours and made daily potential of 217 bbl.

Phil-Han Oil Co.'s No. 1 Ettie, C E½ NE SE Section 5-20-9w, Midway area, was dry and abandoned at total depth of 3,286 ft.

J. H. Tatlock's No. 1 Proffitt, NW NE NW Section 13-20-10w, Proffitt pool, was dry and abandoned at 3,366 ft.

Phil-Han Oil Co. and Hinkle's No. 1 Weiland, C E½ SE NE Section 5-20-9w, was dry and abandoned at 3,268 ft., total depth.

Barton County

Stanolind Oil & Gas Co.'s No. 18 Panning, SW SW SE Section 10-20-11w, South Silica field, Barton County, found Arbuckle lime at 3,287-94 ft., total depth, was acidized and made depthograph potential of 3,259 bbl. of oil.

Same company's No. 2 Eberhart, C N½ NE SW Section 13-19-11w, was dry and abandoned at 3,378 ft., total depth.

Shell Oil Co., Inc.'s No. 1 Herthel, SE SW NW Section 15-17-11w, discovery well in the South Kraft pool, made initial potential of 176 bbl. of oil in Arbuckle lime at 3,274-91 ft. It was deepened to 3,296 ft., acidized and on retest swabbed 180 bbl. of oil in 6 hours and made depthograph potential of 8,206 bbl., drawdown test, limited to 3,000 bbl. maximum potential.

Ellis County

Gulf Oil Co.'s No. 7 Mai, SE NE SE Section 14-11-17w, Bemis field, Ellis County, had Arbuckle lime at 3,359-61 ft., total depth, and made depthograph potential of 4,182 bbl. of oil, with maximum allowable potential of 3,500 bbl.

Doley Oil Co.'s No. 1 Stackhouse, SW SE NW Section 23-12-18w, Koblitz pool, topped Arbuckle lime at 3,723 ft., and was dry and abandoned at total depth of 3,775 ft.

York State Oil Co.'s No. 2 Bemis B, C S½ NE NW Section 33-11-17w, was completed for 15 bbl. of oil daily at total depth of 3,608 ft.

Butler County

Adair & Morton's No. 1 Cannon, NE NE NW Section 15-28-7, Brandt area, Butler County, topped Mississippi lime at 2,740 ft., total depth 2,764 ft., and pumped 30 bbl. of oil daily.

Saco Oil Co.'s No. 1 Cubeen, C SE SW Section 9-27-6, Reynolds-Shaffer pool, found Mississippi lime at 2,763 ft., total depth 2,787 ft., and pumped 30 bbl. of oil daily.

Sinclair Prairie Oil Co.'s No. 9 Millheisler, NE NE SW NE Section 4-26-5, twin well in the Eldorado field, was completed for 65 bbl. of oil daily at total depth of 2,602 ft.

Stafford County

Stanolind Oil & Gas Co.'s No. 4 Harbeson, C W½ SW NW Section 11-24-11w, Zenith field, Stafford County, flowed 18 bbl. of oil in 8 hours; was acidized with 3,000 gal., flowed 111 bbl. in 1 hour, made bomb potential of 16,608 bbl., adjusted to maximum allowable of 5,000 bbl. It had pay in Misener sand at 3,734-63 ft., total depth 3,773 ft.

Same company's No. 6 Siefkes, NE cor. Section 3-22-12w, South Sittner pool, had Arbuckle lime at 3,596-3,605 ft., total depth, pumped 73 bbl. of oil in 8 hours and made potential of 220 bbl.

Ellsworth County

Stanolind Oil & Gas Co.'s No. 2 Stumps, C W½ W½ NE Section 30-17-10w, Bloomer pool, Ellsworth County, was dry and abandoned at total depth of 3,319 ft.

Greenwood County

Oko Oil & Gas Co.'s No. 19 Shadel, C N½ S½ SE Section 15-23-13, Virgil area, Greenwood County, was completed for 20 bbl. of oil daily in Mississippi lime at 1,781-98 ft., total depth.

Duncan Oil Co.'s No. 3 Souder, C W½ W½ NW Section 20-23-13, was dry and abandoned at 1,754 ft., total depth.

Ward McGinnis' No. 3 Morgan, NW SE NW Section 7-24-12, Hamilton area, was dry and abandoned at total depth of 1,919 ft.

McPherson County

Continental Oil Co.'s No. 1 Johnson, S½ NE NE Section 31-20-5w, Bornholdt pool, McPherson County, had pay in Mississippi chat at 3,353-77 ft., total depth, flowed 1,011 bbl. of oil in 8 hours and made daily potential of 3,033 bbl., to rate as the biggest well in the pool.

Cowley County

Three gas wells were completed recently in the Frog Hollow area, Cowley County. Allred & Glass' No. 1 Miller, C SW SW Section 26-32-5, gaged 700,000 cu. ft. daily at 632 ft., total depth; same operator's No. 1-A Miller, C SW SW Section 14-32-5, gaged 900,000 cu. ft. daily at total depth of 640 ft.; and Ben Gralapp's No. 1 Bailey, C NW NW Section 26-32-5, was rated at 900,000 cu. ft. daily, total depth 638 ft.

New Wildcat Tests

New wildcats included: Duwe & Farris' No. 1-A Meggers, SL SE NE SW Section 21-20-11w, Barton County, rigging up rotary; E. A. Cullum's No. 1 Doan, C SW NW Section 34-12-22, Johnson County, drilling at 35 ft.; Tom Palmer and others' No. 1 Williams, C E½ SE NE Section 32-19-5w, McPherson County, rigging rotary; Mid-Plains Production Co.'s No. 1 Newkirk, S½ SW SE Section 14-18-7w, Rice County, location; Stanolind Oil & Gas Co.'s No. 1 Bredfeldt, S½ SW NE Section 2-19-10w, Rice County, waiting on cement at 225 ft.

First reports of other new operations follow:

Ellis County

Dickey Oil Co.'s No. 3-A Henderson, C N½ SW NE Section 7-11-17w, Ellis County, rigging rotary. Lario Oil & Gas Co.'s No. 4-C Cress, SE SW SW Section 13-11-17w, building rig. Earl Wakefield's No. 2-A Burnett, SW NE SE Section 1-11-18w, waiting on cement, 1,312 ft. Bay Petroleum Co.'s No. 2-A Ridler, NW NE NE Section 12-11-18w, location. Same company's No. 3-A Ridler, SW SE NE Section 12-11-18w, location. Skelly Oil Co.'s No. 1 Kempe, C S½ SW NE Section 12-11-18w, rigging up rotary.

Rice County

W. C. McBride, Inc.'s No. 1 Hodge, SE SE NE Section 25-20-6w, Rice County, building rig. Gulf Oil Corp.'s No. 4-A Gassman, E½ NW NE Section 8-21-7w, drilling below 90 ft. H. & M. Drilling Co.'s No. 1 Geimeinhardt, S½ NE NE Section 28-19-10w, rigging machine. J. H. Tatlock's No. 1-B Proffitt, NE SW SW Section 12-20-10w, drilling below 1,950 ft.

Barton County

Stanolind Oil & Gas Co.'s No. 21 Panning, S½ NW SE Section 10-20-11w, Barton County, building rig. Shell Oil Co., Inc.'s No. 11-B Schneider, SW SE NW Section 1-16-14w, cellar. Western Kansas Oil & Refining Co.'s No. 2 Gage, C W½ E½ NW Section 2-17-13w, location.

Butler County

Adair and others' No. 2 Ramp, NE NW NW Section 23-28-7, Butler County, was a cellar. Saco Oil Co.'s No. 1-A Marshall, C SW SW Section 9-27-6, rigging up machine. H. Strickler's No. 3 Cease, SL SW SW NE Section 21-28-4, machine. E. B. Shawver's No. 1 fee, SE SE NW Section 26-29-4, location. Simpson Oil Co.'s No. 4 Steinhoff, S½ SE SE Section 2-29-6, drilling below 760 ft.

Stafford County

Stanolind Oil & Gas Co.'s No. 1 Hullman, C E½ SE NE Section 10-24-11w, Stafford County, rigging rotary. Same company's No. 8 Fuller, C W½ NW SW Section 11-24-11w, rigging rotary. Cities Service Oil Co.'s No. 2-B Smith, NW NW SE Section 16-21-11w, waiting on cement 340 ft.

Russell County

Cities Service Oil Co.'s No. 4 Podzus, C S½ S½ SW Section 25-15-14w, Russell County, drilling at 180 ft. Coralena Oil Co.'s No. 5 Dumler, NW cor. Section 36-15-14w, rigging rotary. R. H. Shields' No. 7 Letsch, C W½ E½ SE Section 27-14-13w, moving in material. Skelly Oil Co.'s No. 9 Opdycke, N½ NE SW Section 29-14-13w, rigging rotary.

Cowley County

Western Kansas Oil & Refining Co.'s No. 5 Ferguson, SE NE SW Section 21-30-8, Cowley County, location. Continental Oil Co. and others' No. 1 Eddings, NW SE SE Section 16-32-5, rigging up rotary. Jones and others' No. 3 Chance, NW SE NE Section 21-32-5, location. Brewer and others' No. 2 Brown, C W½ SE NW Section 33-30-4, moving in material.

McPherson County

Continental Oil Co. and others' No. 10 Huxman, C E½ W½ NW Section 29-21-1w, McPherson County, location. Fain Drilling Co. and Sunray Oil Co.'s No. 2 Briggs, C E½ SW NW Section 29-20-5w, building rig. Sunray Oil Co.'s No. 2 Esx, C E½ W½ Section 31-20-5w, building rig.

Forest City Basin Reports

ST. JOSEPH, Mo., Nov. 27.—Pawnee Royalty Co. has begun the 60-day pumping test at its No. 1 Boice, C NE NE Section 18-1n-16e, near Falls City, Richardson County, Nebraska, in an effort to win the $15,000 bonus offered for that state for the first producing oil well in Nebraska. In order to obtain the bonus, the discovery well must average at least 50 bbl. of oil daily for 60 days. It pumped 58.2 bbl. of oil in 6 hours of the first day of the official test, and 61.7 bbl. in 7 hours the second day. Operators plan to pump for a few hours each day, or just long enough to produce the required 50 bbl. Production is from Hunton lime at 2,276-87 ft., total depth. Gravity of the oil is 31.9 degrees, corrected. The oil is being trucked to the refinery of Searle Petroleum Co. at Omaha, Neb.

The second well to be drilled by the Pawnee company on its big Richardson County block was started the past week at No. 1 Meyers, C NW NW Section 24-1n-15e, about 1¾ miles southwest of the discovery well. Cable rig and tools from No. 1 Boice were moved to the new location.

Stephens & Uhri, Humboldt operators, were reported to have spudded Nov. 24 at their No. 1 Stauffer, SW SW NE Section 22-1n-13e, the third Richardson County test to get started. It is near the town of Humboldt and about 14 miles west of the discovery well. An 84-ft. derrick, standard rig and cable tools are being used. Location is on a block of 6,000 acres. Operators plan to drill to the granite unless production is found above that.

Plans for at least 3 other wells in the Falls City area were reported in the formative stage, while a previous report of another test was declared premature. Jackson & Byram, Atchison, Kan., operators who were interested in a dry hole recently drilled near that town, were said to be planning a test about 3 miles north of No. 1 Boice. Hayden Campbell was reported planning a test 2½ miles northwest of the discovery, and P. G. Reynolds reportedly has a block with drilling obligation 12 miles north of the Boice. Reports that the Bretz Oil Co. would drill on the W. R. Holt farm near Falls City were declared premature.

In the Iowa sector of the Forest City basin, Phillips Petroleum Co. was scheduled to spud Nov. 28 at No. 1 Creston, C SE NE Section 31-71-30w, south of Creston in Union County. It was planned that Frank Phillips, chairman of the board of the Phillips company, should send a message from Bartlesville, Okla., directing that drilling start that day, which is his birthday anniversary. The company has about 200,000 acres leased in Iowa.

Two new locations were reported in Missouri. Missouri Valley Gas & Oil Co.'s No. 1 Jacks, SE cor. Section 7-51-33w, Platte County wildcat, was drilling below 165 ft. E. H. Lawhon and others' No. 1 Gottschall, C SE SE Section 18-59-32w, was location for a DeKalb County wildcat, northwest of Maysville.

A failure was recorded in Andrew County, Missouri, at E. F. Neely and others' No. 1 Shores, SE SE SE Section 12-60-37w. Arbuckle lime was topped at 2,744 ft. and drilled to 2,780 ft., total depth. Except for a showing of asphaltic oil at 2,670-85 ft., there was nothing in the well. Derby Oil Co. was interested in the block.

Morrow & Rogers and others' No. 1 Colley, NW SE SE NW Section 33-64-17w, Adair County wildcat, topped

(Continued on Page 98)

Oklahoma Operations

By
DAL DALRYMPLE

Wildcat on Big Lease Block In 3 Counties Seeks Wilcox

The search for new oil reserves in Oklahoma was extended with the starting of several new outposts; a gas area was opened in Muskogee County; the Shawnee pool in Pottawatomie County was extended northward, and the southeast extension area of the St. Louis field, Pottawatomie County, was enlarged.

Pure Oil Co. started work at No. 1 Perrin, NE NW SE Section 28-5s-7e, wildcat in northeastern Marshall County, near the Johnston-Bryan county intersection. Location is near the center of a block of about 20,000 acres in Townships 5s-7e, 5s-6e, 6s-7e, and 6s-8e, in Marshall, Johnston, and Bryan counties. The block was assembled for the Pure company by Quinton Little, of Madill. It will be a 7,000-ft. test with Wilcox sand as the goal. Location is near the Washita River in an area that will be condemned for flooding if the Denison dam project materializes. The Pure company has made an extensive seismograph survey of the block.

Harper-Turner and others' No. 1 Shaffer, NW NW NW Section 6-16-2e, wildcat in northwestern Lincoln County, was being started. It is northeast of the Meridian pool in Logan County and south of the Coyle pool, Payne County. Wilcox-sand production will be sought. Operators have a block of 760 acres. Wirt Franklin started work at No. 1 Fant, NW SW NE Section 27-10-2w, on the east flank of the Moore field, Cleveland County, and north of a junked hole. It is three locations east of production. Russell Tarr, N. B. Feagin and associates' No. 1 Campbell, SE NE SE Section 24-10-7, is location for a wildcat about 2 miles west of the Cromwell pool and 1 mile northeast of the North Bethel pool, Seminole County. Summit Drilling Co. has the contract. Cromwell-sand production at around 3,600 ft. will be sought.

A shallow gas area was opened in Muskogee County by O. E. Dempsey and J. R. Wright in their No. 1 Morris, SE SW NE Section 26-15-17, west of the city of Muskogee. It found sand at 1,180-95 ft., and was completed for 1,400,000 cu. ft. of gas daily, with 360 lb. rock pressure. Operators planned to start four more wells in the area right away. Oklahoma Natural Gas Corp. will take the gas.

Wildcat Operations

T. C. Iglehart's No. 1 Campbell, SW NE SW Section 4-6-5, outpost in the southeast extension area of the St. Louis district, Pottawatomie County, was completed in dolomite at 4,070-97 ft., total depth, with 7-in. casing set at 4,062 ft. It was acidized and pumped 150 bbl. of oil and 150 bbl. of water the first 24 hours, later pumping 176 bbl. of oil and 1,500 bbl. of water in 24 hours. It is about ¾ mile south and west of the discovery well in the southeast extension, completed by the same operator several weeks ago.

Butler and others' No. 1 Burnett, NE SW NE Section 30-7-20w, Kiowa County wildcat, was dry and abandoned at 1,201 ft., total depth. Operators were expected to drill another test on the block.

Scarborough and others' No. 1-B Ash, NE NE SE Section 7-4s-10w, Cotton County wildcat, was dry and abandoned at 1,618 ft., total depth.

McCarty's No. 1 Jones, SE SE SE Section 24-4s-10w, wildcat in Cotton County, was dry and abandoned at total depth of 1,618 ft.

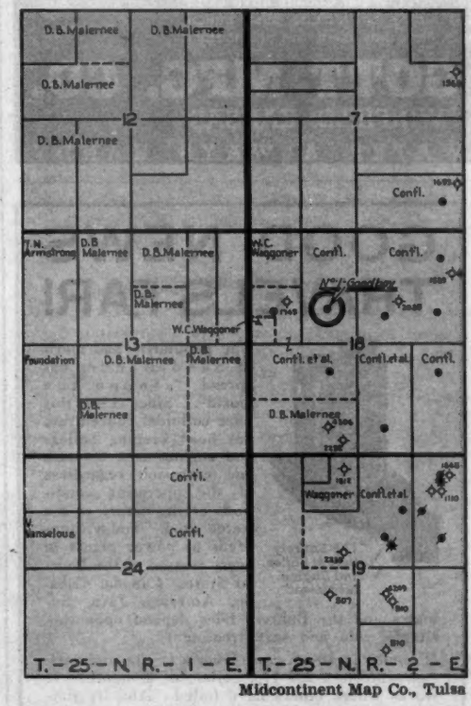
Litchfield & Kirksley's No. 1 Scheusler, SW SE SW Section 13-6s-14e, wildcat near Unger, Choctaw County, had a showing of oil in sandy lime at 1,169-81 ft., total depth 1,185 ft. Four-inch pipe was set at 1,146 ft., and a light showing of oil was tested, but water intruded and it was abandoned.

New wildcat operations included May's No. 1 Sacra, SW NE SW Section 17-5s-5e, location for a 2,500-ft. test northwest of Madill, Marshall County; Vierson's No. 1-A Judeman, SW SE NW Section 24-14-10, twin location northeast of the Dunn pool, Creek County, rigging up standard tools; Indo Oil Co.'s No. 1 Slick, NW NW NW Section 1-16-9, location for 3,200-ft. test between Bristow and Kellyville, Creek County; Royalty Service Co.'s No. 1 Poynter, NE NW NE Section 4-20-6, location for a deep test in the Maramec area, Pawnee County.

Pottawatomie County

Big Chief Drilling Co.'s No. 2 Youts, SE NW SW Section 28-7-5, east side of St. Louis district, Pottawatomie County, topped dolomite at 4,095 ft., total depth 4,102 ft., was acidized and pumped 201 bbl. of oil in 24 hours, initially. Watchorn Oil & Gas Co.'s No. 2 Bourbonnais, NW NW NE Section 28-7-5, had Earlsboro zone at 3,082-3,102 ft., total depth 3,205 ft., set 5-in. pipe at 2,806 ft., perforated at 2,728-32 ft., and pumped 4 bbl. of oil and 200 bbl. of water daily.

Sinclair Prairie Oil Co.'s No. 3 Deatheridge, SE NE NW Section 28-7-4, an old St. Louis well, was deepened from 4,152 ft. to Wilcox sand at 4,298-4,321 ft., total depth, and pumped 480 bbl. of oil and 90 bbl. of water in 24 hours. Tilico Oil Co.'s No. 2 Brister, NW NW NE Section 28-7-4, an old well, was deepened from 4,164 ft. to Wilcox sand at 4,270-4,302 ft., total depth, set 5-in. pipe at 4,292 ft., and swabbed 1,000 bbl. of oil in 24 hours.



Midcontinent Map Co., Tulsa

Continental Oil Co. was cleaning out after a shot at No. 1 Goodboy, C SE NW Section 18-25-2e, on the southeast flank of the Ponca City pool, Kay County. It had a hole nearly full of oil from sand at 3,901-37 ft.

Ray Dunnett extended production in the Shawnee pool one location northwestward at No. 3 McDonald, SE SW SE Section 31-11-4. It found Earlsboro sand at 4,430 ft., total depth 4,478 ft., made several head flows and went dead. It was shot and made flowing potential of 526 bbl. of oil in 24 hours. Potential was made through tubing.

New work in Pottawatomie County: Denver Producing & Refining Co.'s No. 2 Houck, C N½ NW NW Section 1-6-4, building rig; same company's No. 2 Ray, NE SW NE Section 2-6-4, old well deepening from 4,030 ft., drilling below 4,045 ft.; Schafer's No. 2 Schrader, NW SE NE Section 6-6-5, location; Alma Oil Co.'s No. 3 Johnson, SE NW SW Section 19-6-5, rigging up rotary; Buttram Petroleum Co.'s No. 1 Rhodd, NE NE NW Section 17-7-5, building rig; H. G. Marshall's No. 2 Rose, NW NE NE Section 6-10-4, spudded.

Seminole County

Completions of the week in Seminole County included: Mid-Continent Petroleum Corp.'s No. 4 Tiger, SW SW SE Section 12-6-5, Grayson area, dolomite 3,675 ft., total depth 3,770 ft., swabbed 200 bbl. of oil and 200 bbl. of water in 24 hours, and pumped 155 bbl. of oil and 310 bbl. of water in 24 hours. Sinclair Prairie Oil Co.'s No. 1 Carter, NW NE SW Section 22-7-5, Hazel district, Earlsboro sand 3,123 ft., total depth 3,148 ft., shot, swabbed 30 bbl. of oil in 24 hours and pumped 15 bbl. of oil and 7 bbl. of water in 12 hours. Wood Oil Co.'s No. 3 Ashby, NW NE NW Section 22-7-5, ½ mile north of No. 1 Carter, was dry and abandoned in dolomite at 4,055 ft., total depth 4,177 ft. Alma Oil Co.'s No. 1 Denver, SW SW SW Section 27-7-5, had Viola lime at 4,060 ft., Dense 4,106 ft., total depth 4,190 ft., acidized, pumped 110 bbl. of oil and 600 bbl. of water in 24 hours.

Wood Oil Co.'s No. 4 Tiger, SW NE NE Section 2-8-6, topped dolomite 4,146 ft., Wilcox sand 4,160 ft., total depth 4,200 ft., was shot and pumped 41 bbl. of oil in 22 hours. Ligon's No. 1 Jones, SW SW SE Section 24-8-7, found Wapanucka zone at 3,322 ft., total depth 3,335 ft., and flowed 300 bbl. of oil daily. Addison's No. 1 Werner, C W½ NW NE Section 11-9-6, found Hunton lime at 4,108-27 ft., total depth, plugged back to 2,630 ft., perforated casing and flowed 25 bbl. of oil and 18 bbl. of water daily. Ross Oil Co.'s No. 1 Perry, SE NW SW Section 18-9-7, East Seminole area, had Senora sand at 2,642-62 ft., total depth, perforated casing and was shot, but was dry and abandoned. Baker's No. 1 Newell, SE NE NW Section 3-10-5, North Earlsboro field, had Wilcox sand at 4,623 ft., total depth 4,629 ft., pumped 221 bbl. of oil the first 24 hours and 205 bbl. the next 24 hours.

Culver & Shepherd and others' No. 1 Swan C, NW SW SE Section 3-5-5, Burton pool, topped Hunton lime at 2,527 ft., set 8-in. casing at 2,517 ft. and was completed at total depth of 2,700 ft. It was acidized and pumped 140 bbl. of oil the first 24 hours, 110 bbl. the next 24 hours.

McMahon's No. 5 Burgess, NE NE NE Section 29-6-6, was a location. Helmerich & Payne, Inc.'s No. 1 Fish, NE SE NE Section 30-7-8, was drilling below 2,010 ft. Devonian Oil Co.'s No. 1 Hornestake, NE SW NE Section 22-8-7, was building rig. Hall's No. 1-A Taylor, SW SW NE Section 35-10-7, was a location.

Pontotoc County

Magnolia Petroleum Co.'s No. 4 Chandler, SE NW NE Section 35-5-7, Pontotoc County, had Gilcrease zone at 2,198 ft., total depth 2,291 ft., set 8-in. pipe at 2,230 ft., swabbed 50 bbl. of oil in 24 hours and pumped 25 bbl. of oil and 38 bbl. of water daily.

Minton's No. 1 Houston, NE SW NW Section 35-5-7, had Cromwell sand at 2,800 ft., was bottomed at 2,819 ft., water intruded and it was abandoned.

Sinclair Prairie Oil Co.'s No. 14 Ralls, CEL NE SW Section 28-5-8, Allen district, was completed in sand at 848-63 ft., total depth, pumping 10 bbl. of oil daily.

Simpson-Roodhouse Drilling Co.'s No. 1 Mack, C E½ E½ SW Section 33-2n-7, was a rig.

Lincoln County

Wilcox Oil & Gas Co.'s No. 1 Evans, NE NE NW Section 21-14-8, Sac and Fox pool, Lincoln County, topped Prue sand at 3,010 ft., total depth 3,107 ft., and set 7-in.

casing at 3,011 ft. It was shot and flowed 151 bbl. of oil in 24 hours.

Stanolind Oil & Gas Co.'s No. 3 James B, C S½ S½ SW Section 35-13-5, was a rig. Wilcox Oil & Gas Co.'s No. 4 Furry, NW NW NE Section 21-14-6, was a location.

Okmulgee County

Moffett's No. 1 Fowler, NW SE NE Section 16-11-12, Okmulgee County, found sand at 1,275-95 ft., was bottomed at 1,301 ft., and completed for 333,000 cu. ft. of gas daily, with 280 lb. rock pressure.

Logan County

Sinclair Prairie Oil Co.'s No. 1 Smith, NW SW SE Section 12-17-1w, an old well in the Langston pool, Logan County, was deepened from 5,100 ft. to second Wilcox sand at 5,144 ft., was shot in sand at 5,145-57 ft., total depth, and pumped 75 bbl. of oil daily.

Creek County

W. M. Dunn and others' No. 2 Cantrell, SW NE SE Section 34-14-10, Dunn pool, southern Creek County, was completed in Misener sand at 3,173-81 ft., total depth. On initial test it flowed 2,350 bbl. of oil in 38 hours and was shut in. Later it was completed, flowing at the rate of 775 bbl. of 44-gravity oil daily.

Other Creek County completions: Von Sturm's No. 1 Woods, SE SE NW Section 32-14-8, Prue sand 2,493 ft., total depth 2,560 ft., shot, pumped 15 bbl. of oil and 10 bbl. of water daily. Chapman's No. 1 McNac, NE SW SE Section 35-15-10, Slick district, Wilcox sand 3,118-45 ft., total depth, shot, swabbed 193 bbl. of oil in 24 hours, pumped 176 bbl. in 24 hours. Sinclair Prairie Oil Co.'s No. 38 Dacon, SE SE NE Section 16-17-7, Drumright area, had Bartlesville sand at 2,616-2,727 ft., total depth 2,730 ft., pumped 6 bbl. of oil and 7 bbl. of water daily. Smith's No. 1 Meyer, SE NW NE Section 1-17-10, had a hole full of water in Wilcox sand at 2,825-45 ft., total depth, and was abandoned. Ireland's No. 5 Farley, NE SE NE Section 13-17-10, Kellyville district, drilled Tanaha sand at 2,216-43 ft., total depth, produced 5,500,000 cu. ft. of gas daily. McAdams & Thornton's No. 2 McMahon B, SW NW SW Section 31-17-10, Dutcher sand 2,690-2,750 ft., total depth, flowed 750 bbl. of oil in 24 hours. Nabob Oil Co.'s No. 1 Dix, NE NE SW Section 34-18-8, an old well, deepened to Bartlesville sand at 2,763-2,819 ft., total depth, dry and abandoned.

New operations in Creek County: McIntyre's No. 1 Turnbull, SE NW NE Section 17-14-8, drilling below 755 ft.; Von Sturm's No. 1 Beaver, SW SW NE Section 32-14-8, set 12-in. casing at 100 ft., waiting on cement; Chapman's No. 2 McNac, SE NW SE Section 35-15-10, location; Sand Springs Home's No. 2 Atkins, NW NW NE Section 5-18-7, old well, plugging back to Skinner sand; Walling's No. 1 Abraham, SE SE SE Section 22-18-7, spudded.

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Estimated Daily Production

Estimated daily production for Oklahoma for the week ended November 25, and for the preceding week was as follows:

	Barrels	
	Nov. 25	Nov. 18
Allen	5,875	5,875
Billings	6,325	6,250
Burbank	7,275	7,250
South Burbank	9,350	9,375
Balance Osage	17,700	17,500
Blackwell district	3,525	3,550
Bristow-Slick	6,400	6,425
Chandler	1,475	1,425
Crescent	2,650	2,675
Cromwell	3,025	3,050
Cushing-Shamrock	9,300	9,300
Duncan	3,750	3,725
Edmond	4,375	4,500
Fish	4,075	4,075
Fitts	19,900	20,200
Jesse	2,125	2,150
Graham-Fox	2,850	2,825
Gray	775	775
Healdton	9,525	9,550
Hewitt	3,950	3,925
Keokuk	3,475	3,450
Konawa	1,225	1,175
Lucien	8,350	8,325
Moore	2,675	2,875
Oklahoma City	105,900	109,200
Olympic	2,675	2,650
Ramsey	4,950	4,925
Sasakwa	1,650	1,675
Sholem-Alechem	2,675	2,675
Seminole district:		
Bowlegs	7,125	7,075
Carr City	2,375	2,325
Dora	2,950	2,950
Earlsboro	4,175	4,125
South Earlsboro	525	525
East Earlsboro	2,650	2,625
Little River	6,150	6,175
East Little River	750	750
Maud	625	625
Mission	1,275	1,250
Seminole	6,825	6,750
East Seminole	1,175	1,150
Searight	2,175	2,125
Total Seminole	38,775	38,450
St. Louis-Pearson	28,300	28,250
Tatums	1,950	1,900
Tonkawa-Garber-Thomas	3,950	3,950
Wewoka	1,625	1,625
Yale-Jennings	3,375	3,350
Other pools	91,450	92,200
Total Oklahoma	427,225	431,075

Osage County

Olson Oil Co.'s No. 2 Osage, NW SW NE Section 24-26-4, western Osage County, drilled sand at 3,104-33 ft., shale 3,133-36 ft., total depth, was shot and flowed 80 bbl. of oil in 24 hours.

Magnolia Petroleum Co.'s No. 6 Osage, SW NE NW Section 23-26-6, found Burbank sand at 2,920-3,009 ft., was bottomed at 3,012 ft., shot at 2,966-3,009 ft., and flowed 1,187 bbl. of oil in 24 hours. Gas gaged 2,500,000 cu. ft. It is the largest producer completed in the Burbank sector in many months.

Pawnee County

Haynes' No. 1-A Tate, SE SE NW Section 9-20-9, twin location in Pawnee County, was abandoned.

Watchorn Oil & Gas Co.'s No. 17 Miller, SW NE SW Section 33-23-3e, was bottomed at 2,720 ft., and running electrical survey.

Payne County

Amerada Petroleum Corp.'s No. 1 Hays, C W½ SE SW Section 1-17-1e, Coyle area, Payne County, was dry and abandoned in Wilcox sand at 4,990-5,008 ft., total depth.

In Oklahoma County, Olson's No. 1 Scritchfield, NW NE SE Section 4-12-3w, Oklahoma City field, was a rig. Champlin Refining Co.'s No. 1 Littlepage, SW NW NW Section 35-12-3w, had dug cellar and pits.

(Continued on Page 98)

West, Central and Panhandle Texas

By D. H. STORMONT

Central Ector County Next Scene of Exploratory Work

MIDLAND, Tex., Nov. 27.—A third well producing from the deep pay in the North Cowden pool of Ector County, and increased interest in the Johnson area of central Ector County, together with the possibility of a new Ordovician pool for the southern basin, led the activity of a busy week in the West Texas field.

The Johnson area of central Ector County, just west of the town of Odessa, was discovered some time ago, but, due to the large wells in the neighboring fields, Harper, Foster, North Cowden, and Goldsmith, the area was little explored. Field development has now pushed to the edges of the Johnson area and thorough exploration is predicted.

Closely following the completion of Indian Territory Illuminating Oil Co.'s No. 1 Johnson, between the Foster and the North Cowden pools, Landreth Production Corp. and Shell Oil Co., Inc., are drilling below 1,570 ft. in No. 1 J. L. Johnson, Section 43, Block 43, T-1-S, T.&P. Survey, 3¾ miles northeast of the Harper pool and the same distance southeast of the Cummins-Goldsmith pool, 5½ miles southwest of the North Cowden pool and 4 miles northwest of the Foster pool. Nearest production is Sloan & Zook's No. 1 Johnson, a small wildcat producer 3 miles to the northeast.

Also in Ector County and on the northwest end of the North Cowden pool, the third producer was brought in during the week from the deep-lime pay discovered last summer. The new well is Sinclair Prairie Oil Co.'s No. 3 Fay Holt, Section 1, Block A, P.S.L. Survey, east offset to the Gulf Oil Corp.'s No. 1 Holt, discovery well in the area. The well responded to acid treatment of 1,500 gal. by flowing 2½ bbl. of oil hourly. Acid was injected into the pay section from 5,145 to 5,160 ft., total depth, through 2-in. tubing.

The most closely watched wildcat since the discovery well in the Ordovician producing oil pool in northern Pecos County is the possible new Ordovician-pool discovery in Crockett County. After having topped the Simpson formation (Middle Ordovician) some 811 ft. higher than normal for the area, Continental Oil Co.'s No. 1 Todd Unit, Section 30, Block WX, G.C.S.F. Survey, 15 miles northwest of the town of Ozona, showed its first signs of oil in the Ellenburger formation, topped at 6,256 ft. A good odor of oil and slight shows of gas are reported from the hole as swabbing continues through 2-in. tubing at a total depth of 6,316 ft. If it makes a commercial producer it will have opened the fourth Ordovician oil pool in West Texas.

Meanwhile activity continued in West Texas' third and most recently discovered Ordovician pool, the Apco. Magnolia Petroleum Co.'s No. 1 Masterson, Section 104, Block 10, H.&G.N. Survey, third producer in the field, flowed 179 bbl. of oil in 24 hours after a third acid treatment of 6,000 gal. at a total depth of 4,536 ft. Humble Oil & Refining Co.'s No. 1 Mrs. B. D. Young, Ordovician wildcat in Section 33, Block 10, H.&G.N. Survey, 8½ miles northwest of the Apco pool, was drilling below 1,955 ft. Two miles southwest of the pool Olson Drilling Co. and Bryce McCandless' No. 1 Mrs. Virginia W. Crockett, Ordovician wildcat, was drilling below 1,720 ft.

In Mitchell County the first wildcat activity in several months was scheduled to commence soon at two wells to be drilled by R. T. Dockery and B. F. Robbins on two major blocks assembled during the past 3 months. Locations for the wells have not been announced. The operators will seek the 2,300-ft. production found in the nearby Sharon Ridge pool of Scurry County. The well will be in the northern part of the county and in the area between the Sharon and the Westbrook pools. The operators drilled a wildcat 3 years ago on the W. C. Berry lands in the northwestern part of Mitchell County, but the hole was lost in attempts to acidize.

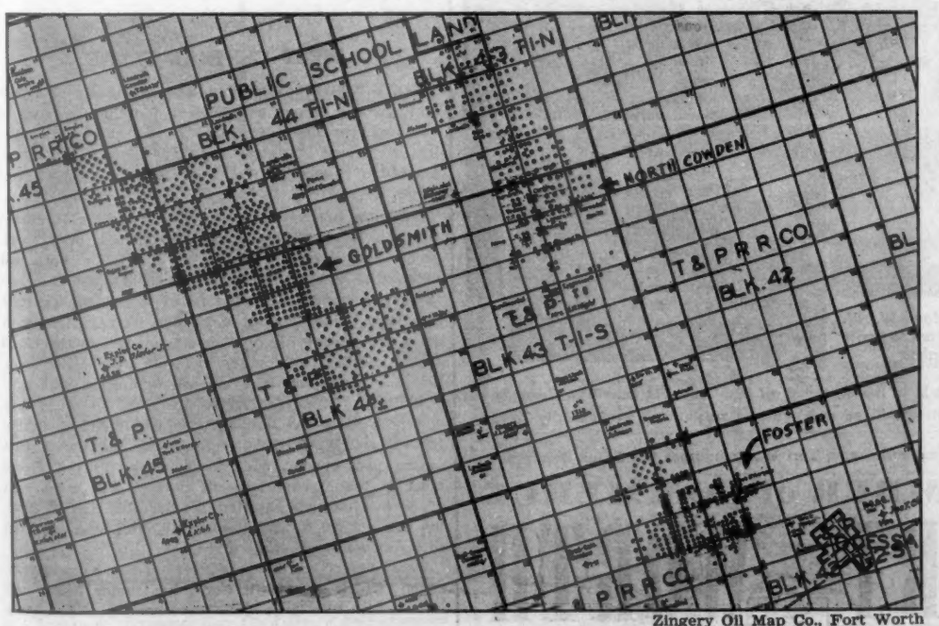
North Basin Area

Holding the attention for a second week in the far-north Permian basin area was the Atlantic Refining Co.'s No. 1 H. T. Boyd, wildcat in Labor 11, League 56, Oldham C.S.L., 2½ miles east of the Duggan area in Cochran County. Still undetermined whether a new pool opener or a link between the Duggan and the Slaughter pools, the well has established larger initial production than any recorded in the Duggan pool. The well was flowing at the rate of 885 bbl. of oil daily from the lime pay drilled from 4,950 to 5,040 ft. It is due east of the Duggan pool and about 3½ miles northwest of the western end of the Slaughter pool.

Failure was seen for the south central part of Cochran County when Dean & Hyde's No. 1 Reed, Section 21, Harrison & Brown Survey, about 10 miles west of the Duggan pool, uncovered sulfur water at a total depth of 5,106 ft. Having logged only slight shows of oil previous to the water, operators were preparing to abandon the test.

In the same general area but across the line south and in Yoakum County, Sloan & Zook and others' No. 1 Fitzgerald, Section 22, Block D, Gibson Survey, was reported to have cemented 7-in. casing at 4,812 ft. Total depth is 4,843 ft.

Prospects of a second producer for the recently opened Cedar Lake pool in northeastern Gaines County were seen at the Stanolind Oil & Gas Co.'s No. 1 American Warehouse, west offset to the company's discovery well. Cores from 4,624 to 4,698 ft. showed saturated and bleeding lime. Location is in the SE cor. Section 5, Block H, D.&W. Survey. It is coring below 4,698 ft.



Zingery Oil Map Co., Fort Worth

Johnson area of Ector County between the North Cowden and the Foster pools is attracting considerable attention as new tests and locations tend to narrow the distance between these two major West Texas pools

WEST TEXAS COMPLETIONS

(24-hour gages)

Andrews County

In the Means field Humble Oil & Refining Co.'s No. 70 J. S. Means, 4,560-4,610 ft., 1,442 bbl.

Crane County

In the Dune field Great Western Oil Corp.'s No. 4-A University, 3,180-3,309 ft., 606 bbl. In the Sand Hills field Humble Oil & Refining Co.'s No. 32 J. B. Tubbs, 4,320-4,420 ft., 3,276 bbl. In the Jordan field Magnolia Petroleum Co.'s No. 13 Edwards, 3,423-3,551 ft., 40 bbl.

Crockett County

In the Crockett field Frank B. Black's No. 2-A Powell-Superior, 2,565-95 ft., 695 bbl.

Ector County

In the Foster field Arkansas Fuel Oil Co.'s No. 3-C Johnson, 4,116-4,220 ft., 381 bbl. Lee Drilling Co.'s No. 8 Johnson, 4,290-4,325 ft., 1,640 bbl. Midland Drilling Co.'s No. 2 Henderson, 3,985-4,230 ft., 1,601 bbl. Stanolind Oil & Gas Co.'s No. 27-B E. F. Cowden, 4,050-4,390 ft., 163 bbl. Stanolind Oil & Gas Co.'s No. 28-B E. F. Cowden, 4,020-4,120 ft., 398 bbl. Stanolind Oil & Gas Co.'s No. 24 Witcher, 3,950-4,155 ft., 2,197 bbl. Sunray Oil Co.'s No. 4-C Witcher, 3,925-4,154 ft., 2,406 bbl.

In the Goldsmith field Gulf Oil Corp.'s No. 230 Goldsmith, 4,160-4,215 ft., 696 bbl. Gulf Oil Corp.'s No. 231 Goldsmith, 4,127-87 ft., 1,492 bbl.

In the Jordan field Kewanee Oil Co.'s No. 1-B University, 3,436-3,640 ft., 1,937 bbl.

In the North Cowden field Stanolind Oil & Gas Co.'s No. 22 Roberts, 4,310-4,525 ft., 474 bbl.

Gaines County

In the Wasson field Carter-Phillips' No. 2-B Wasson, 4,888-5,020 ft., 1,496 bbl. In the Seminole field Osage Drilling Co.'s No. 3-A Tippett, 5,075-5,335 ft., 704 bbl.

Pecos County

In the Apco field Magnolia Petroleum Co.'s No. 1 J. S. Masterson, 4,505-36 ft., 179 bbl. In the Lehn area Don Oil Co.'s No. 1 Masterson-Lehn, 1,690-1,716 ft., 69 bbl. In the Shearer field Childress Royalty Co.'s No. 2-B Shearer-Mid-Continent, dry and abandoned, 1,655 ft. Oliver & Cowden's No. 4 and 5 Masterson, abandoned location. In the Taylor-Link field A. W. Rutter's

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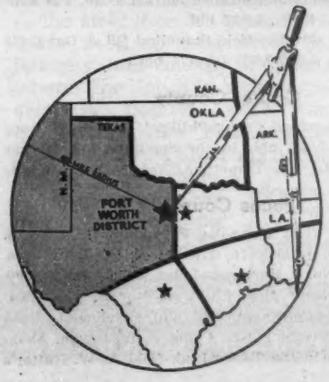
★ *WA-RU Lodge—W. W. Lechner's home on Eagle Mountain Lake.*



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CHAMBER of COMMERCE

FORT WORTH

Heart of the Mid-Continent Area

No. 2 University, 1,700-26 ft., 139 bbl. In the Yates field Ohio Oil Co.'s No. 1-J Yates, 1,357-58 ft., 17,014 bbl. in 12 hours.

Sterling County

A wildcat, A. P. Groebel's No. 1 T. G. Brennand, dry and abandoned at 3,850 ft.

Upton County

In the Gulf-McElroy field Gulf Oil Corp.'s No. 205 McElroy, 2,760-2,898 ft., 2,417 bbl. In the McCamey field Harvey, Sergeant & Rutter's No. 7-A Cordova-Union, 2,150-2,245 ft., 504 bbl.

Ward County

In the Estes area Gulf Oil Corp.'s No. 125 Estes, 2,536-2,670 ft., 1,037 bbl. In the O'Brien area Gulf Oil Corp.'s No. 116 O'Brien, 2,600-2,767 ft., 190 bbl. Superior Oil Co.'s No. 12 Smith, 2,326-2,424 ft., 23 bbl.

Winkler County

In the Keystone field S. W. Richardson's No. 1 Jenkins-Southland, 3,310-83 ft., 465 bbl.

Yoakum County

In the Wasson-Bennett field Aloco Oil Co.'s No. 2 Elliott, 4,925-5,225 ft., 248 bbl. Aloco Oil Co.'s No. 2 Greer, 4,959-5,214 ft., 1,070 bbl. Aloco Oil Co.'s No. 3 Jordan, 5,000-5,198 ft., 495 bbl. Aloco Oil Co.'s No. 7 Wooten, 4,945-5,135 ft., 1,272 bbl. Don Danvers' No. 6 Clawater-Amerada, 4,947-5,175 ft., 326 bbl. Don Danvers' No. 3 Lloyd Dowell, 4,920-65 ft., 110 bbl. Don Danvers' No. 4 Lloyd Dowell, 4,920-5,060 ft., 420 bbl. Magnolia Petroleum Co.'s No. 9 Kendrick, 5,040-5,150 ft., 1,583 bbl. Oil Development Co. of Texas' No. 7-803 fee, 4,933-5,215 ft., 1,376 bbl. Shell Oil Co., Inc.'s No. 2-D Baumgart ,4,850-5,154 ft., 850 bbl. Sinclair Prairie Oil Co.'s No. 5-A Kendrick, 5,006-5,155 ft., 698 bbl.

PANHANDLE FIELD COMPLETIONS

(24-hour gages)

Carson County

Magnolia Petroleum Co.'s No. 64 fee, 3,020-82 ft., 390 bbl.

Gray County

Amagray Oil Co.'s No. 1 Cobb, 2,700-25 ft., 70 bbl. Shell Oil Co., Inc.'s No. 4 Hughey, 3,110-95 ft., 237 bbl. Texas Co.'s No. 3 Dave Pope, 3,166-3,220 ft., 526 bbl.

Hutchinson County

McIlroy Oil Co.'s No. 10 Haile, 3,010-66 ft., 718 bbl. Alma Oil Co.'s No. 6 Whittenburg, 2,925-50 ft., 397 bbl.

Wheeler County

Alma Oil Co.'s No. 1 Parrott, 2,409-11 ft., pumped 65 bbl. Alma Oil Co.'s No. 1 Perkins-Cullums, 2,400-10 ft., 198 bbl.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Nov. 27.—Possibility of a new and slightly deeper pay horizon for the Ivy pool of northwestern Shackelford County, together with activity in Brown County's recently opened new pool, marked a rather inactive week for the West Central Texas district.

The new horizon discovery at Ivy is Iron Mountain Oil Co.'s No. 2 Coker-Mansker, completed for 239 bbl. of oil daily from the lower Palo Pinto lime bottomed at 3,238 ft. After halting operations at 3,228 ft. when the area's regular pay zone failed to pay off, the test was later drilled deeper and found its pay. The operators are considering drilling a twin well to the No. 5 Ivy, a south offset to the new well, which was abandoned as a dry hole last year after going to 3,225 ft.

In Brown County, offsetting the same operators' discovery well to the north, Davis, McDonald & Campbell's No. 2 W. P. Hill, 300 ft. north and 100 ft. east of the pool opener, which was located on a 213-acre tract in the Myrum Mudgett Survey, 1½ miles east of Grosvenor, was showing considerable gas in drilling below 1,300 ft. The discovery horizon was expected to be encountered early this week.

Prospects of another producer on the large Morris ranch, which Anzac Oil Corp. has under lease, and upon which two large wells were completed last summer, was seen as the week closed. The well is States Oil Corp.'s No. 1 J. P. Morris. With oil bubbling

(Continued on Page 115)

North Louisiana, Arkansas

2 New Oil Wells and 1 Dry Hole in Mississippi Field

By
GEORGE WEBER

SHREVEPORT, La., Nov. 27.—Continued failure in the squeeze job on the deep Lisbon test of Claiborne Parish, Louisiana, relegated that area to the background during the week, with Mississippi activity taking first interest. There the Tinsley field was extended to the east and north and limited on the west, and other tests approached critical depths.

South Arkansas wildcats, particularly two in Columbia County are being closely watched. The deep Pine Island test of Stanolind Oil & Gas Co. in Caddo Parish is also commanding interest as tests get under way on the possible horizons in the lower Marine formation. The Waskom deep production was officially extended from Harrison County, Texas, into Caddo Parish, Louisiana, by completion of a gas-condensate well. Elsewhere in the four-state area, drilling is slack and new developments of minor interest.

Lisbon Test

The Lisbon Exploration Co.'s No. 1 Vaughn again failed to squeeze off perforations at 8,354-83 ft. and further testing of lower showings was postponed until at least this week. The deep test found three horizons in the lower Marine formation that showed production possibilities, but trouble set in when casing opposite the upper sand was perforated, the gun sticking in the hole. It was pushed to the bottom and abandoned, and the section perforated showed salt water on a drill-stem test. Squeeze jobs of the section have thus far failed to shut off salt water. This week, after the latest squeeze, the plug was drilled and the casing swabbed, showing salt water, and operators shut down to await cement to resqueeze. Sections at 8,449-55 ft. and 8,817-48 ft. will be tested when the upper horizon has been successfully shut off.

Pine Island Test

In Caddo Parish Stanolind Oil & Gas Co. is testing lower Marine sections drilled in its deep Pine Island test, No. 131 Dillon. The geologic data on the lower section of the hole, as recently released is: Top of cap rock 10,148 ft., top of salt 10,159 ft., base of salt 11,405 ft., total depth, in igneous rock, 11,419 ft. Elevation is 237 ft. Operators plugged the hole back to 9,981 ft. and tested the section at 7,546-62 ft., which showed mud. This horizon is being squeezed for further tests in lower Marine formation sections which showed possibilities of production.

The deep Waskom gas-condensate production was extended into Louisiana this week by the completion of Arkansas Louisiana Gas Co.'s No. 1 Bell, which gaged 10,500,000 cu. ft. of gas on open flow, with a rock pressure of 2,310 lb. The well is bottomed at 6,400 ft., and 5½-in. casing set at 6,169 ft. was perforated in three horizons at 5,915-35 ft., 5,975-95 ft. and 6,060-6,100 ft.

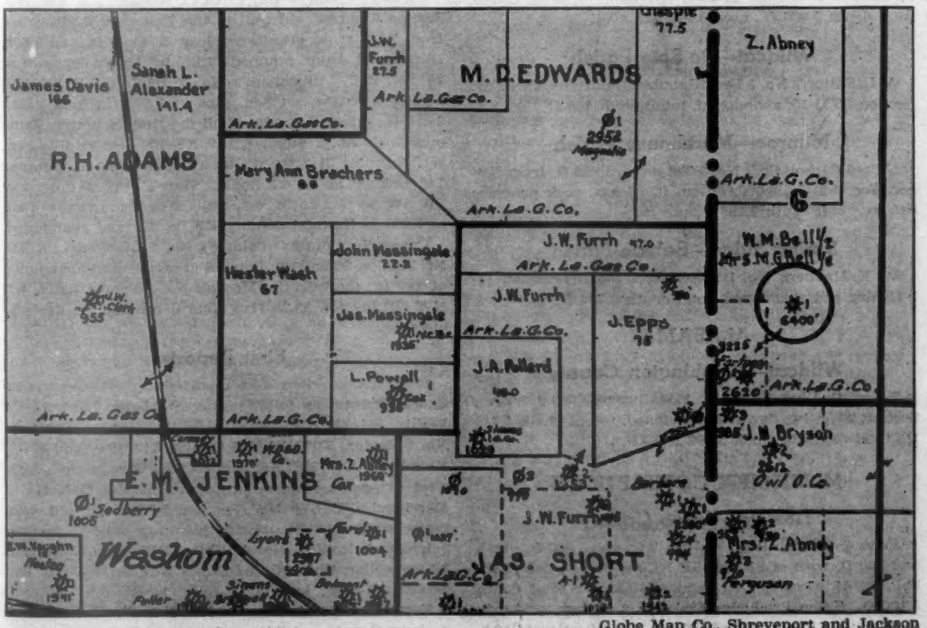
MISSISSIPPI

Leasing continues in Mississippi, despite the first dry hole in the Tinsley field, with heaviest gains shown in the counties to the north of the Tinsley area, namely, Carroll, Holmes, Humphreys, Leflore and Washington. Geophysical parties are still being moved into the state, and a total of 50 parties, including seismograph, gravity meter and soil analysis crews are now active in Mississippi and western Alabama, particularly in the central and northern sections of Mississippi.

Leasing has become competitive and major company interests are having difficulty in working up blocks. The interest is so keen that areas under the attention of shooting crews or land men are closely watched and in many cases prices which began at 25 cents an acre have risen to $2 in some cases, and $3 and sometimes higher in other cases due to the competitive leasing.

Tinsley Field

The Tinsley field gained new producers last week, and was defined on the west by a failure in both the Woodruff, of Selma horizon, and the Eutaw horizon.



Globe Map Co., Shreveport and Jackson

Arkansas Louisiana Gas Co.'s No. 1 Bell extended the deep Glen Rose gas-condensate production of Harrison County, Texas, Waskom field into Caddo Parish, Louisiana, by completion for an initial production of 10,500,000 cu. ft. of gas and distillate from sands between 5,915-6,100 ft.

Jones & O'Brien Brothers' No. 2 Stevens, an east-edge test, was completed in the Selma horizon for the best well to date in the field, gaging 55 bbl. hourly through a 22/64-in. choke. The oil sand in this well is at 4,560-88 ft.

The field's deep test, Union Producing Co.'s No. 1 Stevens, which failed to find production in the Selma and was drilled to a total depth of 6,112 ft., was plugged back to 4,973 ft. and perforated in the Eutaw formation at 4,867-77 ft. The well gaged 303 bbl. daily through a ¼-in. choke with a casing pressure of 70 lb. and tubing pressure of 195 lb. These low pressures were also characteristic of the upper pay. This well, the first to bring in commercial production from the Eutaw, is located on the north edge of the field. A north offset to it, Jones & O'Brien Brothers' No. 1-B Stevens, has spudded.

A west outpost, Union Producing Co.'s No. 1 Friley, 1,943.8 ft. west and 677.9 ft. south of the NE cor. SE Section 14-10-3, was abandoned as a failure, as it found no commercial oil showings in the Eutaw formation. No Selma formation was found in the test, and the hole was drilled to a total depth of 5,029 ft., after showing a recovery of 70 ft. of slightly oil-cut mud at 4,845-4,901 ft. in a 15-minute drill-stem test. This development, coupled with the completion of the field's best wells to the east and north, throws the play definitely in that direction. To the north and east of the field, 8 miles east of Yazoo City, Conroe Wilcox Minerals, Inc.'s No. 1 Stubblefield is drilling below 1,050 ft. in the most interesting wildcat of the district, and two north outposts to production at Tinsley, Edgar Johnston's No. 1 Broomfield and T. B. Slick, Jr.'s No. 1 W. S. Atkinson have spudded and are tests of considerable importance.

Production by Pool

Estimated daily gross production all companies week ended November 24:

NORTH LOUISIANA

	Barrels
Bellevue	485
Caddo light	5,420
Caddo heavy	2,515
Converse	560
Cotton Valley	*13,250
Cross Lake	5,800
De Soto and Red River	1,100
Elm Grove	310
Haynesville	2,755
Holly	80
Homer	2,745
Lisbon	4,845
Pleasant Hill	90
Rodessa	22,385
Sarepta-Carterville	†290
Sligo	965
Sugar Creek	275
Urania	2,520
Zwolle	2,440
Total	68,830

SOUTH ARKANSAS

Atlanta	375
Buckner	2,250
Champagnolle	1,380
Dorcheat	315
El Dorado	1,600
Lewisville	840
Lisbon	235
Magnolia	17,570
Miller County	295
Nevada	540
Rodessa	3,085
Schuler	18,400
Smackover light	1,890
Smackover heavy	14,475
Stephens	530
Troy	1,290
Urbana	970
Village	1,250
Total	67,290

Texas side of Rodessa 26,085 bbl.

*3,000 bbl. is distillate.
†105 bbl. is distillate.

ARKANSAS

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lumbia County are the centers of interest in South Arkansas this week as they approach the Smackover-lime formation. No. 1 Petty Stave & Lumber Co., in the Big Creek area, Section 4-17-21, is drilling below 7,736 ft. with the top of the Buckner formation tentatively reported at 7,651 ft. The second wildcat, No. 1 R. S. Warnock, in the Warnock Springs area, Section 36-16-20, topped the Buckner formation at 7,388 ft. and is drilling in lime and anhydrite below 7,450 ft. approaching the formation in which most of Arkansas' flush production of the past 3 years has been discovered.

ARKANSAS COMPLETIONS

Village—Columbia County

Standard Oil Co. of Louisiana's No. 1 Oda Jameson and others, 660 ft. north and 664 ft. west of SE cor. Section 14-17-19, 204 bbl., 9/64-in. choke, casing pressure 1,250 lb., tubing pressure 1,150 lb., total depth 7,147 ft.

Lewisville-Stamps—Lafayette County

East Texas Refining Co.'s No. 2-A Patton estate, 373 ft. south and 652 ft. east of NW cor. NW NE Section 24-16-24, 60 bbl., 13/64-in. choke, tubing pressure 10 lb., casing pressure 750 lb., total depth 3,480 ft.

NORTH LOUISIANA COMPLETIONS

Sligo—Bossier Parish

Triangle Drilling Co.'s No. 3-A Herold and others. 1,668 ft. east and 322 ft. south of NW cor. Section 13-17-12, 300 bbl., ½-in. choke, total depth 3,015 ft.

Shreveport—Caddo Parish

R. E. Allison's No. 3 Ellerbe and others, 330 ft. north and 1,980 ft. east of SW cor. Section 27-18-14, 240 bbl., ⅛-in. choke, tubing pressure 450 lb., casing pressure 620 lb., total depth 5,601 ft., plugged back to 5,553 ft.

Caddo—Caddo Parish

Ben F. French's No. 1 Butler & Howard, Section 12-20-16, abandoned derrick. Bobby Manziel's No. 2 Brooks, Section 17-21-15, salt water and abandoned, total depth 1,080 ft. Texas Co.'s No. 1 Shea, Section 1-20-16, 175 bbl. through open tubing, casing pressure 135 lb., tubing pressure 20 lb., total depth 1,480 ft., acidized with 4,000 gal. J. F. VanCleve's No. 1 Bickham, Section 24-22-16, dry and abandoned at 2,703 ft.

Waskom—Caddo Parish

Arkansas Louisiana Gas Co.'s No. 1 Bell, 1,213 ft. north and 1,067 ft. E of SW cor. Section 6-17-16, 10,500,000 cu. ft. of gas, open flow, rock pressure 2,310 lb., total depth 6,400 ft.

Lisbon—Claiborne Parish

Oakes & Shadrup's No. 1 Lloyd, 660 ft. south and 722 ft. east of C Section 10-20-5, 864 bbl., 13/64-in. choke, total depth 5,330 ft., used 3,000 gal. acid.

Wildcat—De Soto Parish

A. L. Sutton's No. 1 Frost Lumber Industries, C NE SE Section 35-11-15, abandoned, total depth 400 ft.

Monroe—Morehouse Parish

United Carbon Co.'s No. 3 Tulsa fee, 1,980 ft. from NW cor. Sec. 4-21-5e, 6,000,000 cu. ft. of gas, rock pressure 810 lb., total depth 2,189 ft.

Spring Ridge—Sabine Parish

W. E. Manners' No. 1 Stephens, C SW SE Section 17-9-11, dry and abandoned, total depth 3,724 ft.

ALABAMA

Wildcat—Washington County

Texon Drilling Co.'s No. 1 Stallworth Naval Stores, Section 25-5n-4w, dry and abandoned, top of chalk 4,745 ft., total depth in chalk 5,502 ft.

MISSISSIPPI COMPLETIONS

Tinsley—Yazoo County

Jones & O'Brien Brothers' No. 2 Stevens, 660 ft. north and 730 ft. west of SE cor. SE NE Section 13-10-3, 1,320 bbl., 22/64-in. choke, oil sand 4,560-88 ft., total depth 5,100 ft. Union Producing Co.'s No. 1 Friley, 1,943.8 ft. west and 677.9 ft. south of NE cor. SE¼ Section 14-10-3, dry and abandoned, total depth 5,029 ft. Union Producing Co.'s No. 1 Stevens, C NW NW Section 13-10-3, 303 bbl., ¼-in. choke, casing pressure 70 lb., tubing pressure 195 lb., perforations at 4,867-77 ft., total depth 6,112 ft.

EAST BORDER TEXAS

Rodessa—Marion County

C. H. Lyons' No. 1 Jackson, 473 ft. from north line, 460 ft. from west line 20-acre tract, John Hanks Survey, 1,200,000 cu. ft. of gas and 70 bbl. of distillate, ⅛-in. choke, total depth 6,087 ft., tubing and casing pressures 1,625 lb. Shell Oil Co.'s No. 3 Whelan, 330 ft. from south and west lines of tract, Gillespie Survey, 86 bbl., ⅛-in. choke, tubing pressure 400 lb., casing pressure 1,000 lb., total depth 5,996 ft.

Forest City Basin Activity

(Continued from Page 92)

St. Peter sand at 1,375 ft., had Arbuckle lime at 1,476-1,526 ft., total depth, with nothing showing, and was shut down for orders.

Chillicothe Syndicate's No. 1 Linton, CSL NE SE Section 15-56-23w, was an abandoned location in Livingston County.

Bob Miller and others' No. 1 Corrough, C SE SE Section 24-57-35w, wildcat east of St. Joseph, Buchanan County, found Cherokee shale at 706 ft. and was running 12½-in. casing at 830 ft.

A revival in leasing is reported in the basin, especially in areas near the Nebraska discovery. Most favored districts right now are in Richardson County, Nebraska, and Holt County, Missouri, directly east of Richardson, and Brown County, Kansas, southern neighbor of the discovery county. Several independent operators were reported planning tests in Holt and Brown counties, as well as in Richardson.

Oklahoma Fields

(Continued from Page 94)

Southwestern Oklahoma

The following wells were completed in southwestern Oklahoma counties:

Stephens County—Carl Carter's No. 13 Harmon, NW NE NE Section 27-1s-5w, Velma area, sand 605-19 ft. and 632-38 ft., total depth, pumped 3 bbl. of oil daily. Same operator's No. 15 Magnolia-Harley, NE NW NE Section 24-2s-4w, Milroy area, sands 450-59 ft. and 483-96 ft., total depth, pumped 5 bbl. of oil and 5 bbl. of water. Louis Sikes' No. 2 Sikes, SW NW NE Section 28-1s-8w, total depth 2,202 ft., plugged back 702 ft., dry and abandoned. Jackson's No. 5 Montgomery, NW NW SE Section 11-2s-8w, Empire field, sand 2,027-52 ft., total depth 2,062 ft., shot, pumped 15 bbl. of oil.

Cotton County—Shasta Oil Co.'s No. 2 Littlefield, NE SE NW Section 31-1s-9w, Walters field, total depth 1,265 ft., abandoned.

Jackson County—Ray's No. 2 Ronald, SE SW NW Section 5-1s-19w, old well in the Tipton pool, deepened from 2,582 ft. to granite wash at 2,583-95 ft. and 2,603-18 ft., total depth, pumped 27 bbl. of oil, an increase of 20 bbl. daily. Burnham's No. 2 Daniels, SE SE NW Section 6-1s-19w, set 8-in. pipe at 2,370 ft., total depth 2,615 ft., pumped 70 bbl. of oil the first 24 hours. Same operator's No. 5 Sumner, SW NE SE Section 6-1s-19w, set 8-in. pipe at 2,340 ft., total depth 2,588 ft., pumped 145 bbl. of oil in 24 hours. Harris' No. 1 Cole, SW SW SW Section 35-2n-20w, Altus area, had granite wash at 1,065-80 ft., total depth 1,258 ft., dry and abandoned.

Comanche County—Palmer's No. 1 Lindberg, SE SW NE Section 26-2n-11w, Lawton area, dry and abandoned at 280 ft., total depth. Moore's No. 1 School Land, NE NW NE Section 35-2n-11w, total depth 223 ft., dry and abandoned.

First Reports

Six new operations were reported in the Cement field, Caddo County, as follows: Ray Stephens, Inc.'s No. 1 Wallis, SE SE SW Section 15-6-10w, same operator's No. 1 Rector, SW NW NW Section 24-6-10w, and No. 1 Holmberg, NW NE NE Section 28-6-10w, all in northwest extension area, cellars dug; Ohio Oil Co.'s No. 3 Marchand, SE SW NW Section 2-5-9w, an old well bottomed at 5,433 ft., moving in rotary tools to deepen; Johnson & Rollins' No. 1 White, NW NE SW Section 3-5-9w, cellar; Ohio Oil Co.'s No. 8 Wagner, NW SW SW Section 12-5-9w, building.

Vaughn's No. 1-A Cole, NE NW NW Section 3-1n-20w, Jackson County, set 7-in. casing at 1,415 ft., waiting on cement; same operator's No. 2-B Cole, NE SE NW Section 3-1n-20w, moving in rotary tools; Navajo Oil Co.'s No. 5 Henslay, NW SE NW Section 10-1n-20w, pits.

North and East Texas

By D. H. STORMONT

Montague and Clay Counties Have Promise of New Pools

WICHITA FALLS, Tex., Nov. 27. — Indicated new pools in both Clay and Montague counties, together with a mile-west extension to Wilbarger County's K.M.A. extension pool, highlighted the activity of another eventful week in the North Texas district.

Having long been the object of wildcat exploration in northern Young and northwestern Jack counties, the deep Caddo-lime search has gradually spread northward to both Archer and Clay counties. Closely following the opening of Archer County's second Caddo-lime field, a new area of Caddo production was in prospect for southwestern Clay County and 5 miles northwest of the Halsell pool. Discovery is the fourth deep pool to be opened in Clay County since the exploration began early last spring.

The pool opener is Continental Oil Co.'s No. 1 C. O. Ross, Jr., Block 31, William Walker Survey, Abstract 703, about 5 miles south of the town of Jolly. No. 1 Ross cored saturated Smithwick (Caddo) lime at 5,373-92 ft., total depth, with cores reported to have shown good porosity. Production gages have not been announced. The test previously had drilled saturated lime at 5,358-62 ft. in the Marble Falls lime at the top of the Bend-lime series. Another wildcat in Clay County, and offering possibilities of a pool opener, is Fraber-Hodges Corp. and Sinclair Prairie Oil Co.'s No. 1 Scaling, Section 8, G. P. Meade Survey, Abstract 928, a mile southeast of the company's recently opened Kinder pool. Dry sand was cored at 4,029-49 ft., with sand and shale breaks cored below this to total depth of 4,068 ft. Operators were preparing to drill ahead.

In Montague County and 5 miles north of the town of Bowie, Continental Oil Co.'s No. 1 J. T. Brown, wildcat in the G. E. Nabours Survey, Abstract 1416, will continue to the Ellenburger lime of Ordovician age before testing several shows encountered in the lower Strawn and Bend horizons. It was last reported below 6,572 ft. The wildcat drilled a show of oil at 6,466-74 ft., which appeared on the pits. The Ellenburger is expected within the next 100 ft. of hole.

Also in Montague County, 1 mile east of the three-pay Bowers pool, United Producers Co.'s No. 1 Rich, G. R. Jaquez Survey, Abstract 393, was reported to have topped saturated granite wash at 3,668 ft. and drilled in saturation to 3,708 ft. The hole has been bottomed at 3,730 ft. where electrical survey is to be run before casing is cemented.

Wilbarger County's western K.M.A. extension area, being developed by Consolidated Oil Co., received a mile-farther-west extension during the week when the company drilled 48 ft. of saturation in what is believed to be a new and the third pay horizon for the pool. The test is No. 1-FF Waggoner, Section 25, Block 6, H.&T.C. Survey. Saturated lime was cored at 4,020-68 ft., where the hole was bottomed, and casing cemented on top of the lime. All other oil wells in the area are producing from either the 3,700-ft. or the 4,100-ft. pays. Several locations have been staked on all sides of the pool and operators indicated that some of the smaller producers from the 3,700-ft. pay would be deepened to the 4,100-ft. horizon. The area is at present considered a separate pool, but is expected to link with the K.M.A. pool in the future.

In Archer County and 1½ miles west of the town of Anarene in the central part of the county, W. B. Hamilton continues to plug back and test his No. 5 Graham, a wildcat in the S. Abercrombie Survey, Abstract 1249. With no production found in the Marble Falls, the test has been plugged back to the Caddo lime, where testing is in operation. Casing was perforated at 4,750-70 ft. and the lime section acidized.

A small southwest extension to the extremely active Hull-Silk pool of northern Archer County was seen at the Petroleum Producers Co.'s No. 1-A Johnson, in the western part of the J. S. Brooks Survey, Abstract 17. The well was completed for 113 bbl. of oil in 3 hours, or at the rate of about 900 bbl. daily, from sand drilled from 4,298 to 4,309 ft.

NORTH TEXAS COMPLETIONS

Archer County

Guy J. Brown's No. 3 J. J. Perkins, 1,137 ft., dry. Deep Oil Development Co. and R. G. Drilling Co.'s Dr. J. A. Little, 4,327-68 ft., 664 bbl. E. C. Oil Co.'s No. 18 Anna Mangold, 3,788-3,860 ft., 880 bbl. King Oil Co. and Phillips' No. 4 Wilson E, 3,855-71 ft., 720 bbl. Bert L. Ligon's No. 4 O. T. Anderson, 4,380-4,405 ft., 400 bbl. Bert L. Ligon and others' No. 1 L. F. Wilson C, 4,346-79 ft., 720 bbl. A. P. Nicholson, trustee's No. 1 J. S. Matlock, 646-62 ft., 8 bbl. Petroleum Production Co.'s No. 1 S. D. Johnson A, 4,296-4,309 ft., 904 bbl. Petroleum Production Co.'s No. 1 L. F. Wilson McCrory, trustee, 4,280-4,325 ft., 3,840 bbl. Phillips Petroleum Co.'s No. 5 A. L. Moss, 1,310 ft., dry. Riddle & Lewis' No. 1 J. D. Carpenter, 918 ft., dry. Russell & Wilson's No. 22 H. O. Prideaux, 590-675 ft., 10 bbl.

Baylor County

British American Oil Producing Co.'s No. 3 F. C. Green D, 2,639 ft., dry.

Clay County

E. N. Costley and others' No. 1 C. T. Taylor C, 1,050-74 ft., 211 bbl. W. H. Metzner's No. 3 Taylor and others, 1,263 ft., dry.

Cooke County

C. & L. Oil Co.'s No. 6 J. J. Perkins, 866-80 ft., 20 bbl. Fleming & Kimbell's No. 1 Theo. Wiesman, 1,159 ft., dry. McDaniel and others' No. 5 Joseph Weisman, 680-89 ft., 10 bbl. Sinclair Prairie Oil Co.'s No. 2 P. McGeorge, 4,923-57 ft., 369 bbl.

Jack County

Panhandle Refining Co.'s No. 1 Daugherty, 3,315 ft., dry.

Montague County

Anderson-Prichard Oil Corp.'s No. 1 Mae Reed, abandoned location. Stanolind Oil & Gas Co.'s No. 1 Kate Davis, 4,320-73 ft., 1,144 bbl. Sunray Oil Co.'s No. 1 J. B. Burnett, 4,623-53 ft., 1,608 bbl.

Wichita County

Buffalo Oil Co.'s No. 21 W. P. Ferguson, 3,710-3,844 ft., 571 bbl. G. W. Cooper's No. 2 N. N. Martin, 1,824 ft., dry. Dinsmore and others' No. 1 C. A. Mertens, 550 ft., dry. E. C. Oil Co.'s No. 10 Mrs. Anna Mangold, 3,735-83 ft., 654 bbl. Fain-McGaha Oil Corp.'s No. 3 E. P. Griffin A, 3,810-19 ft., 1,200 bbl. J. E. Farrell's No. 33 J. L. and T. J. Waggoner C, 3,774-3,816 ft., 720 bbl. Grisso Royalty Co.'s No. 1 T. A. Barwise, 1,962 ft., dry. Hanlon-Buchanon, Inc.'s No. 4 Fassett & Tuttle E, 3,978-4,030 ft., 640 bbl. Hanlon-Buchanan, Inc.'s No. 2 Fassett & Tuttle G, 4,023-75 ft., 720 bbl. Kimmell Lee & Co.'s No. 2 M. A. Love, 3,860-4,023 ft., 1,065 bbl. Mrs. J. L. Pyle's No. 1 W. L. Warren, 878 ft., dry.

Wilbarger County

Consolidated Oil Co.'s No. 2 G. B. Ancell J, 3,751-82 ft., 1,148 bbl. W. B. Omohundro's No. 1 W. T. Waggoner, 3,741 ft., dry. Panhandle Refining Co.'s No. 1 J. Zeiset, 2,000 ft., dry. Phillips Petroleum Co.'s No. 1 R. L. Castleberry, 3,209-18 ft., 605 bbl.

Young County

W. F. Collins No. 1 Mrs. A. L. Porter, 110 ft., abandoned. Dean Brothers and Murray and others' No. 2 P. W. King, 3,737-95 ft., 232 bbl. B. C. Gilmore's No. 1 C. A. Brown, 561 ft., dry. B. C. Gilmore's No. 2 J. W. Cox, 641 ft., dry. Holbrook & Woods' No. 13 R. L. Watson B, 575 ft., dry. W. G. Horn's No. 5 W. B. Gregg, 727-37 ft., 12 bbl. C. W. Hunt's No. 2 H. M. Goss, 1,226-34 ft., 5 bbl.

EASTERN TEXAS

DALLAS, Tex., Nov. 27. — The fluctuating weekly field statistics from the eastern Texas area hit a low mark during the week passed with no new completions and only two locations listed for the East Texas field and only two oil completions and two dry holes for the East Central Texas district. Two new wildcats, projected to the Woodbine sand, somewhat offset the failure of two tests in the area.

The Flag Lake area, including the Bazette extension to the south and the Mabank to the northeast, recorded a new completion and an abandonment. Completion was in the Flag Lake field proper, where the Texas Co. gaged its No. 2 E. P. Harwell, Miller Survey, for 71 bbl. of oil daily through ⅛-in. choke from pay drilled from 2,900 to 2,996 ft. The new well extends the original pool 600 ft. south and toward the Trinity River.

Henderson County's failure was nearly 3 miles northeast of the Flag Lake field and near the Mabank pool. It was Harry Hines' No. 1 Mallory, Mitchell Survey, abandoned at 3,510 ft. after the Woodbine sand was found low and with water. The district's other failure was in Hunt County, where K. E. Jennings abandoned his No. 1 Banks, 4 miles northeast of Greenville, at a plugged-back total depth of 3,342 ft., where it was originally abandoned before having been reinstated to deepen.

The two locations for wildcat tests included the definite staking of previously rumored test in Rusk County. It is the Jeff Bolton's No. 1 Hall Wood, J. I. Sanches Survey, 2½ miles northwest of New Salem. It is in the general area and only 500 ft. southeast of a Woodbine-sand failure drilled last summer by Golden Rod Drilling Co. Operators are moving in materials for immediate drilling. The other location was C. W. Burnaman's No. 1 W. L. Burnaman, in the Hamby Survey, ½ mile southwest of Etoyle.

Considerable activity and reports of future tests were reported for both Cherokee and Rusk counties. Efforts are being made by Edward Howard to drill a Woodbine test nearly 2 miles from Maydell in Cherokee County, in an area where Humble, Sun, Magnolia, and Sinclair Prairie hold acreage. Proposed location is in the Robert Kinsler Survey.

In the Mixon area of Cherokee County, Magnolia Petroleum Co. is credited with having added to a block of about 5,000 acres, the new purchase being in the R. R. Jewell Survey.

Southeast of New Salem, in Rusk County, Shell Oil Co., Inc., is reported to have taken about 2,000 acres in and around the W. Hamilton, W. T. Smith, J. E. Peyton, and G. W. Stone surveys.

Farther north and in Red River County a 4,800-ft. test is planned by J. F. Morrisey of Fort Worth on 6,000-acre block about 4 miles east of Bogata. The contract depth is expected to take the hole well into the lower Trinity sections. Due to the shore-line facies of the Cretaceous strata in this area the test is expected to find the Permian below the Trinity sections.

East Texas' deep Trinity exploratory campaign remained little changed during the week with the Limestone County discovery still testing and others in the

(Continued on Page 101)

California Field Report

By L. P. STOCKMAN

9 New Wells in Montebello; Deep Drilling Campaign On

LOS ANGELES, Calif., Nov. 27.—No. 4-23 Bowerbank, a "mystery" wildcat of Union Oil Co. in the Goose Lake district of Kern County, took a decided change for the better when the top of the Stevens zone was believed to have been found somewhere in the interval between 10,812 ft. and 10,840 ft., and although no official information is being released by the Union Oil Co., this well has shown up so good that the company appears almost certain of opening a field. The Goose Lake district is 8 miles north of the Elk Hills field, 10 miles west of the Greeley field and 20 miles west of Bakersfield. Location of the wildcat and ownership of surrounding acreage was shown on a map on Page 96 of The Oil and Gas Journal, Septemper 7. It has been fairly well indicated that the Stephens sand has been found at about the depth at which it had been anticipated prior to the starting of drilling. Present depth, estimated by drill-pipe count, is approximately 10,940 ft., or about 100 below the top of the zone through which the company is drilling. It is quite likely that a formation test will be made at once. It was predetermined that the Stevens zone would occur in the Goose Lake district deeper than it is found in the Greeley and Ten Section fields in that part of the San Joaquin Basin by a study of the section across the valley, and on this basis the Rio Bravo zone in the Goose Lake district can be expected at about 13,000 ft., which would place it at approximately the same depth at which it is found in the Wasco field of Kern County.

Montebello

In the Montebello field nine new wells and one well recompleted in the Masser zone were reported. The latter was No. 1 Wilcox of Union Oil Co. and it was returned to production flowing 581 bbl. of 36.8-gravity oil and 515,000 cu. ft. of gas daily after the hole had been deepened from 6,248 ft. to 6,695 ft. and gun-perforated at 6,349-57 ft. and 6,380-90 ft. and cemented through perforations at 6,639 ft. This well, due to its relatively low gas-oil ratio, is superior to many wells completed in the more productive La Merced zone where the high gas-oil ratio prevents maximum production due to the necessity of pinching back production in order to reduce gas production.

R. R. Bush Oil Co.'s No. 1 Mihlfred was brought in flowing through a 1-in. bean from 7,694 ft. at the rate of 566 bbl. of 36.8-gravity oil and 2,100,000 cu. ft. of gas daily, and No. 1 Zanetti was finished flowing 430 bbl. of clean 35.7-gravity oil and 2,000,000 cu. ft. of gas per day through a 1-in. bean from 7,692 ft.

Deeper Drilling

After several weeks of uncertainty deeper-zone exploitation has got under way in the Montebello extension. The well which has started down to the second La Merced zone, originally found in No. 30 La Merced of Union Oil Co., is No. 3 Van Deusen of Ivar Larson Drilling Co., which found La Merced zone wet due to edgewater conditions. La Merced zone, now undergoing development, is still in a semiflush state, and while some of the new wells just now getting under way are scheduled for completion in that zone it is not at all improbable that they may be carried down to the second zone if No. 3 Van Deusen finds substantial production. It is generally believed that the deeper horizon will prove superior to La Merced as it has been found that the zones are more prolific and larger in area as the depth progresses.

Beacon Oil Co. completed No. 1 Caneer flowing 202 bbl. of 34.2-gravity oil, cutting 2 per cent, and 3,000,000 cu. ft. of gas per day from La Merced zone, with bottom of the hole at 7,625 ft. It flowed through a 20/64-in. bean under a tubing pressure of 300 lb. and a casing pressure of 650 lb. No. 2 Cowan of Crail Brothers was completed flowing 524 bbl. of 35.4-gravity oil, cutting 2 per cent, and 1,900,000 cu. ft. of gas daily from 7,635 ft. Initial production was coming through a 2-in. and a 48/64-in. bean, but this has been changed in order to reduce gas production.

Crestline Oil Co.'s No. 1 Montebello was brought in flowing 260 bbl. of 33.5-gravity oil, cutting 3 per cent, and 700,000 cu. ft. of gas per day from La Merced zone with bottom of the hole at 7,640 ft., flowing through a 30/64-in. bean. Top of the oil sand was cored at 7,640 ft. and the liner was cemented through perforations at 7,590 ft. No. 1 Foreman of Mono Oil Co. has been completed flowing 265 bbl. of clean 35.9-gravity oil and 850,000 cu. ft. of gas daily through open line from 7,620 ft. and is still building up.

Pongratz Petroleum Co. completed No. 2 Newmark flowing 568 bbl. of clean 39.2-gravity oil and 6,500,000 cu. ft. of gas per day from La Merced zone with bottom of the hole at 7,653 ft. This well, located nearer the gas cap in the Montebello extension, showed the highest gas flow of any well in the field. United Montebello Oil Co. finished No. 3 Montebello flowing 335 bbl. of 36.1-gravity oil, cutting 3 per cent, and 800,000 cu. ft. of gas daily from La Merced zone at 7,650 ft. through an 11/64-in. bean. No. 1 Thill of Wood-Callahan Oil Co. showed an initial production of 406 bbl. of 35.5-gravity oil, cutting 4 per cent, and 850,000 cu. ft. of gas at 7,625 ft. Top of the pay was logged at 7,430 ft. and production is flowing through 7,615 ft. of 2½-in. tubing.

Coalinga

R. S. Lytle, operating for former stockholders of Petroleum Securities Co., Seaboard Oil Co., and Honolulu Oil Corp., completed another excellent flowing well in the Southeast Coalinga field of Fresno County when No. 53-7-F, in Section 7-20-16, was brought in doing 2,160 bbl. of clean 32.8-gravity oil and about 1,000,000 cu. ft. of gas per day from the Gatchell zone with bottom of the hole at 7,861 ft. This new well was finished with an 8⅝-in. water string cemented at 7,210 ft. and with the customary liner and string of 2½-in. tubing. Universal Consolidated Oil Co. has not yet reached the depth at which the Gatchell is expected in No. 81-24-C in Section 24-20-15, in the extreme southern end of the Southeast Coalinga field, but should reach the critical depth this week.

In the Northeast Coalinga field Superior Oil Co. completed No. 1 Husong, in Section 18-19-16, flowing at the rate of 2,000 bbl. of oil and about 4,000,000 cu. ft. of gas per day from the equivalent of the Gatchell zone with bottom of the hole at 8,234 ft. This new well, which topped the Kreyenhagen at 6,942 ft., top of the Glauconitic at 7,912 ft., and top of the productive zone at 7,990 ft., was finished with an 8⅝-in. oil string cemented at 7,990 ft. No. 2 will start shortly. Amerada Petroleum Corp., discoverer of the Northeast Coalinga field, is finishing No. 3-17-B Southern Pacific Land in Section 17-19-16 and erecting derrick for No. 22-20 Ewing in Section 20-19-16. Bandini Petroleum Co. spudded in No. 46-18-B in Section 18-19-16, its second well in the Northeast Coalinga field, and has rig up for No. 51-30-B in Section 30-19-16. Wilshire Oil Co., following the failure of No. 64-30-B in Section 30-19-16 to show a natural flow, has suspended operations at 8,383 ft., from which depth the well showed all fresh water with a 7-in. water string cemented at 8,355 ft.

Kettleman Hills

Kenda, the generally recognized abbreviation for Kettleman North Dome Association, completed an excellent well in the Kettleman North Dome field, No. 25-22-Q in Section 22-22-18, flowing 3,123 bbl. of 36.9-gravity oil and 4,139,000 cu. ft. of gas per day from the Temblor with bottom of the hole at 7,980 ft. Top of the brown shale was cored at 5,348 ft. and top of the Temblor was logged at 6,712 ft. Perforations were made at intervals from 7,020 to 7,814 ft. No. 27-7-Q of Standard Oil Co. in Section 7-22-18 cored top of the Eocene at 9,471 ft., cemented 6⅝-in. at 9,420 ft. and will be cored before making a production test. This is the highest point at which the Eocene has been

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	November 19		November 12			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	.....	.....	.....	.....	857,366	852,826
Fuel oil	.....	.....	.....	.....	1,956,841	58,964
Diesel and gas oil	.....	.....	.....	.....	163,501	.....
Gasoline	.....	.....	.....	.....	3,048,371	2,705,801
Kerosene	.....	.....	.....	.....	225,197	333,626
Foreign exports—						
Crude oil	96,792	13,827	211,687	30,241	13,142,732	19,387,399
Fuel oil	129,313	18,473	326,549	46,650	7,933,937	7,941,835
Diesel and gas oil	40,605	5,801	303,797	43,400	6,855,937	5,153,232
Gasoline	.....	.....	218,830	31,261	6,674,215	7,122,542
Kerosene	.....	.....	.....	.....	1,798,580	950,751
Asphalt	.....	.....	.....	.....	.....	7,563
Lubricants	.....	.....	.....	.....	165,166	175,560
Coastwise-domestic—						
Crude oil	141,312	20,187	243,127	34,732	11,072,158	10,299,420
Fuel oil	148,606	21,229	170,985	24,426	9,417,331	10,744,589
Diesel and gas oil	22,119	3,160	48,006	6,858	2,029,791	1,401,442
Gasoline	218,436	31,205	280,772	40,110	14,837,667	13,096,467
Kerosene	14,988	2,141	29,441	4,206	534,187	235,076

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	124,055	.....
Diesel and gas oil	160,348	22,907	.....	.....	314,092	196,644
Gasoline	.....	.....	.....	.....	43,235	25,409
Kerosene	.....	.....	.....	.....	100,507	16,124
Asphalt	75,478	10,783	.....	.....	501,323	490,039
Lubricants	.....	.....	.....	.....	24,870	19,945
Foreign exports—						
Crude oil	138,522	19,789	.....	.....	5,146,489	4,740,491
Fuel oil	19,780	2,826	.....	.....	2,701,842	2,323,258
Diesel and gas oil	43,918	6,274	.....	.....	2,398,144	2,995,936
Gasoline	75,351	10,764	.....	.....	2,910,676	4,884,717
Kerosene	.....	.....	.....	.....	554,589	696,099
Asphalt	8,172	1,167	.....	.....	22,323	56,258
Lubricants	.....	.....	.....	.....	625,294	534,142
Other finished oil	116	17	.....	.....	815	.....
Coastwise-domestic—						
Fuel oil	71,485	10,212	118,606	16,944	5,713,139	5,745,270
Diesel and gas oil	29,812	4,259	12,371	1,767	1,171,160	1,400,768
Gasoline	133,576	19,082	88,918	12,703	7,096,631	6,968,831
Kerosene	12,211	1,744	26,262	3,755	849,535	559,033

found in the Kettleman North Dome. No. 4 Huffman of Superior Oil Co. in Section 29-21-17, which is being deepened to the Eocene, is down 9,804 ft. but has not yet found the pay and may have to go another 500 ft.

San Joaquin Basin

In the Canal field of Kern County, Shell Oil Co., Inc., completed No. 6-14-A Kern County Land in Section 14-30-25 in the extreme southwestern end of the structure flowing 522 bbl. of 36.4-gravity oil cutting 4 per cent and 327,000 cu. ft. of gas per day from the Stevens zone at 8,250 ft. It was drilled to 8,615 ft. but was plugged back. In the Mount Poso field of Kern County, Ring Oil Co. completed No. 8 Shapiro in Section 32-26-28 pumping 347 bbl. of 16.3-gravity oil cutting 2 per cent with bottom of the hole at 1,710 ft. but plugged back to 1,695 ft. Top of the productive Vedder zone was logged at 1,665 ft. and the hole is bottomed in oil sand and gray shale. Oxford Oil Co. completed a good well in the Midway-Sunset field of Kern County, No. 6 in Section 27-31-22, pumping 180 bbl. of 13.7-gravity oil, cutting 5 per cent. It drilled to 2,057 ft. but plugged back to 1,720 ft. when the bottom failed to contain oil sand.

Mountain View—Arvin

In the Mountain View field of Kern County, Allied Petroleum Co. completed No. 33 in Section 19-30-29 pumping 380 bbl. of 26.7-gravity oil cutting 3 per cent from 4,640 ft. after carrying the hole down to 4,650 ft. and then plugging back because of a questionable gray sand at the bottom. In the Arvin field, southeast of the productive area of the Mountain View field, Richfield Oil Corp. completed No. 2 Mott doing 402 bbl. of 26.2-gravity oil per day from 6,155 ft. on a compressor. Top of the productive Chanac was logged at 5,915 ft.

Cole's Levee—Tupman

Ohio Oil Co., in the Cole's Levee field of Kern County, completed No. 4-F Kern County Land in Section 11-31-25, flowing 1,167 bbl. of 34.1-gravity oil and 1,000,000 cu. ft. of gas per day from the Stevens zone with bottom of the hole at 9,864 ft., but plugged back to 9,800 ft. Top of the Stevens zone was found at 9,650 ft. No. 5-F Kern County Land in Section 10-31-25 should be completed this week. Standard is in the pay in No. 20-3 Kern County Land in Section 9-31-25 at 8,888 ft. and Tide Water Associated Oil Co. is also in the pay in No. 81 Kern County Land in Section 14-31-25 in the extreme southeastern end of the Cole's Levee field at 10,631 ft.

San Miguelito

Continental Oil Co., in the San Miguelito field of Ventura County, completed No. 12 Grubb in Section 23-3-24, flowing 727 bbl. of relatively clean 28.5-gravity oil and 581,000 cu. ft. of gas per day from 7,314 ft., tubing pressure 350 lb. and casing pressure 600 lb. Perforations were made at intervals between 6,005 ft. and 7,313 ft. The position of the Grubb lease on the San Miguelito structure is of prime importance in view of aggressive development by Shell Oil Co., Inc., in the extreme western end of the Ventura Avenue structure, because development may eventually show that the Grubb lease is at the extreme western end of the Ventura Avenue field instead of being in the San Miguelito field, as originally believed. Both Continental Oil Co. and Shell are keeping away from the area between the two sections in order to prevent possible competitive drilling.

Los Angeles Basin

In the Huntington Beach field of Orange County, Southwest Exploration Co. has completed No. 21 State, pumping 588 bbl. of 23.9-gravity oil per day from a depth of 5,000 ft. This is the largest production yet developed by whipstocking wells out beneath the Huntington Beach tidelands. The hole was finished with an 8⅝-in. water string cemented at 4,155 ft. and 890 ft. of 6⅝-in. liner landed on bottom and containing perforations at 4,155-5,000 ft. The crew from this well has been moved to No. 22 State, which is already going ahead.

No. 15 Poggi of General Petroleum Corp. in the Torrance field of Los Angeles Basin has been completed flowing 90 bbl. of 29.6-gravity oil per day through a 20/64-in. bean from a depth of 5,183 ft.

East Texas Fields

(Continued from Page 99)

process of drilling. Samuell & Taylor's No. 1 Barron, Glenrose-lime distillate discovery 4 miles southwest of Groesbeck in Limestone County, has installed gaging equipment and is showing 4,000,000 cu. ft. of gas and 32 bbl. of water-white distillate daily under working pressures of 375 lb. on tubing and 1,875 lb. on casing. The well was drilled to 6,051 ft. and plugged back to complete through a series of perforations in the Glenrose section 5,584 to 5,611 ft. Location is in the W. C. McKinzie Survey.

In Smith County Shell Oil Co., Inc.'s No. 1 Campbell, scheduled 10,000-ft. test on the Chapel Hill structure, was drilling below 5,543 ft. after reporting a top of the Paluxy formation at 5,533 ft. Location is in the P. Lively Survey.

EAST CENTRAL TEXAS COMPLETIONS

(24-hour gages)

Henderson County

In the Flag Lake field, Texas Co.'s No. 2 E. P. Harwell, Miller Survey, 2,990-96 ft., flowed 71 bbl. daily through ½-in. choke on tubing.

Hunt County

K. E. Jennings' No. 1 Banks, a wildcat in the J. W. Haynes Survey, 5 miles northeast of Greenville, dry and abandoned at a total depth of 3,342 ft.

Leon County

In the Long Lake field F. H. E. Oil Co.'s No. 1 M. K. Carter, 5,176-5,255 ft., flowed 79 bbl. through 7/64-in. choke on tubing.

Getty-Soviet Deal Reported

NEW YORK.—Jean Paul Getty, Los Angeles oil producer, was reported, on landing in New York from a trip to Europe, as saying that he had been working on a big oil deal with Soviet Russia, which, if it goes through, calls for the sale of 1,000,000 bbl. of oil by the Getty company.

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Eastern Field Report

By STAFF CORRESPONDENT

Maryland Wildcat Shows Gas; Pennsylvania Field Activity

PITTSBURGH, Pa., Nov. 27.—Not as yet of commercial importance, but of geological interest, is the discovery of some gas in the wildcat being drilled by the New Penn Development Co., William E. Snee and others on the Humberson (Katherine Schartzer) farm on the Accident dome northwest of the town of Accident in Garrett County, Maryland. At 3,750 ft., a volume of 40,000 cu. ft. of gas a day was struck, and at the present depth of 3,896 ft., the volume has not diminished and is being used under the boilers. This is believed to be the first sustained volume of gas discovered in Maryland.

SOUTHEAST OHIO

In Athens County Gibson Oil & Gas Co. completed No. 6 Vandyke in Section 30, Rome Township in the First Cow Run sand, and it produced 8 bbl. the first day after shot. In this section, Gross & McCune completed No. 4 Grant Antle in the same formation and it produced 30 bbl. the first 35 hours after a shot. Total depth 402 ft.

In Columbiana County Pittsburgh Producers completed a ½-bbl. pumper on the Mary J. Shively farm in Section 27, Knox Township in Berea sand at 1,450 ft.

In Jefferson County K & M Oil & Gas Co. completed a 15-bbl. well on the Ella Barnhouse heirs farm in Section 29, Saline Township, in Berea sand at 1,250 ft., which was shot.

In Licking County Kundtz-Hulse, Inc., and others completed a test on the Eli Frey 100 acres in Section 12, Fallsbury Township, in Clinton sand at 3,120 ft. It was shot and after standing for 2 days 32 bbl. of oil was swabbed.

In Mary Ann Township, Licking County, Eugene Ridgeway completed No. 3 Eliza Richards in Section 13, Mary Ann Township, in Berea sand at 827 ft. It produced 12 bbl. the first day after a shot. In Section 18, Newton Township, Ray Penick completed No. 2 Fred Eshelman in Clinton sand at 2,600 ft. It is a gas well gaging 1,500,000 cu. ft a day.

In Medina County Marine Trust Co. drilled wells Nos. 018 and 039 on the Daniel Ross farm, Tract 13, Lot 7, Chatham Township, the Berea grit at 389 and 345 ft., respectively and both will be used as input wells for water flooding.

In Muskingum County Ohio Fuel Gas Co. completed a gas well on the Adam M. Sloan farm in Section 19, Harrison Township, in Clinton sand at 4,273 ft. It gaged 1,200,000 cu. ft. a day, and was shut down 35 ft. in the sand because of an oil showing.

In Perry County C. Z. Ruth completed No. 14 L. Powell in Section 28, Monroe Township, in Berea sand at 1,114 ft. It produced 4 bbl. the first day after shot.

In Cuyahoga County Benedum & Trees are drilling two wells in the Newburg gas pool in Highland Heights Village. A second well on the Ford tract is down 2,500 ft. and the test on the Dawson lease is down 500 ft.

SOUTHWEST PENNSYLVANIA

Several wells were completed in Southwest Pennsylvania during the week and the fields are more active than in several years. In Armstrong County, Cowanshannock Township, Louden & Shilling are testing the gas in No. 1 A. G. Schaffer which was deepened to 3,632 ft. In this township, Peoples Natural Gas Co. was drilling at 2,785 ft. in the William Small test and at 2,385 ft. in the France Harkleroad test. T. W. Phillips Gas & Oil Co. was down 710 ft. in the Jacob Boyer test. Apollo Gas Co. was rigged up on the Hulda Bleakney farm.

In Boggs Township, Armstrong County, John Wray & Co. was drilling at 1,501 ft. No. 3 William Mateer, and at 775 ft. No. 3 Walter Upperman. Peoples Natural Gas Co. is fishing at 1,065 ft. on the J. M. Dunmire farm in Kiskiminitas Township. Apollo Gas Co. is drilling at 832 ft. in the A. D. Dressler test. Broman & Dorcey are building rig on the M. M. Martin farm.

In Kittanning Township, Armstrong County, Edward Young is drilling at 700 ft. in the Hugh Blair test. In Manor Township, John Wray & Co. is drilling at 790 fe. on the David Campbell farm. In Plum Creek Township William McCollins has reached 386 ft. in the Add Reefer test. In South Bend Township Shelocta Gas Co. was down 1,370 ft. on the Harve Reefer farm.

Clarion-Indiana-Westmoreland

In Clarion County Owens Illinois Glass Co. completed a small gas well on the Lewis Keck farm in Red Bank Township, at a total depth of 2,980 ft., open flow 35,000 cu. ft. a day. In Limestone Township T. Swartsfager is drilling at 775 ft. in the William George test, and in Toby Township David Judson and others are rigged up on the Samuel Summerville test.

In Indiana County T. W. Phillips Gas & Oil Co. is drilling seven wells. In Brush Valley Township the test on the Samuel Pool farm is down 1,840 ft.; in Cherryhill Township No. 1 Federal Land Bank is at 2,889 ft.; in Washington Township No. 1 William Spence was testing was at 1,641 ft.; Anna B. Spence test was drilling at 1,295 ft. and the B. S. Conner test at 1,840 ft.; in White Township No. 1 Blanche Deyarmire was drilling at 1,883 ft. and the well on the Loman farm at 1,583 ft.

In Westmoreland County Kiski Valley Gas Co. is drilling at 325 ft. on the John Beighley farm and fishing at 2,240 ft. on the James McBriar farm, both in Bell Township. In Allegheny Township Apollo Gas Co. is skidding to a new location on the D. M. Jones heirs land.

Fayette-Greene

In Greene County No. 4 John Strope in Apollo Township completed by Cochran & Cochran, topped the Gordon stray sand at 3,280 ft. and was drilled to 3,385 ft. with oil and gas at 3,285-3,295 ft. estimated good for 8 bbl. a day.

In Gilmore Township, Greene County, Equitable Gas Co. deepened No. 1 J. E. Wildman from 2,191 ft. to 2,244 ft. with the Big Injun sand at 2,163 ft. and a volume of gas gaging 894,000 cu. ft. a day at 2,239 ft.

In Wayne Township, Greene County, Manufacturers Light & Heat Co. has a rig up on the Haisie Tustin farm. In Richhill Township Natural Gas Co. of West Virginia is drilling at 1,540 ft. in the Robert Burns test. In Washington Township Equitable Gas Co. is drilling at 396 ft. on the W. L. Bebout land. In Greene Township Fred Garrison is still shut down at 1,170 ft. on the Henderson Coal Co. land.

In Fayette County Greensboro Gas Co. is drilling at 1,937 ft. on the Mary Oravis farm with the Fifty Foot sand topped at 1,876 ft. and 67,000 cu. ft. of gas at 1,886 ft. In Menallen Township J. H. Carnell is down 2,462 ft. on the Mike Uhrin farm. In Nicholson Township, the Duquesne Gas Co. has reached 2,215 ft. in the Agnes Kirk test.

Washington County

In South Franklin Township, Washington County, Harry Williams & Co. completed No. 5 Jason Buchanan at 996 ft. with the Big Dunkard topped at 950 ft. and 8 bbl. a day at 984-988 ft.

In Nottingham Township Kammerer & Mingo Gas Co. completed the second test on the Hunter Boriand farm at 1,398 ft. with the Maxton sand topped at 1,393 ft. and 40,000 cu. ft. a day at 1,393-1,395 ft.

In Morris Township Brummage & Brummage have a dry hole on the J. Jones farm, drilled to 3,077 ft., with the Fifth sand at 3,020-3,052 ft. Here, Union Gasoline & Oil Corp. completed No. 821 J. R. Andrews at 2,853 ft. with the Fifty Foot sand at 2,770 ft. and 300,000 cu. ft. of gas at 2,780-2,807 ft. Same company is drilling No. 824 H. A. Day at 2,095 ft. In South Franklin Township, same company, is shut down at 300 ft. in No. 826 C. T. Conn. Foley & Williams are drilling at 1,125 ft. in the John G. Clark test. A. V. Lewis and others are down 420 ft. in No. 2 L. W. Phelan. E. H. and J. B. Tague have reached 812 ft. on the J. O. Pedicord land. In Amwell Township Shivers and others are drilling at 1,795 ft. on the T. J. Horn farm.

In South Strabane Township W. H. Davis is drilling at 400 ft. in No. 11 B. Davis. In North Strabane Township, Keystone Drilling Co. is down 100 ft. in the Mary Means test.

In South Fayette Township, Allegheny County, Cox & Gibson are testing the gas in the William M. Patterson test and Homer Nixon is drilling at 1,485 ft. on the James Hickmon farm. Here, Dunn Bros. Co. have started drilling No. 2 J. J. Bowman.

Deep Tests

On Chestnut Ridge in Fayette County, New Penn Development Co. William E. Snee and others reached 6,567 ft. on the Piedmont Coal Co. lease in North Union Township, and lost the cement spray bailer, which is now being fished. On Laurel Ridge in Stewart Township, Fayette County, these operators and E. G. Mueller are drilling at 400 ft. on the Gregg L. Neel farm, and will shut down to deepen the water well.

On Chestnut Ridge in North Union Township, Fayette County, Wasson & Co. have reached 300 ft. in No. 2 J. H. Sorg.

Gas Wells

Several oil wells were completed in West Virginia during the week. In Pleasants County G. S. M. Powell Farm Oil Co. completed the No. 4 D. P. Carder in Jefferson district in Squaw sand at 2,110 ft. and it started off at 50 bbl. a day. In Lafayette district, Walnut Run Oil Co. completed No. 6 L. C. Dotson, which was drilled deeper to 1,870 ft., Injun sand, and it is good for about 1½ bbl. a day. In Washington district, Pleasants County, Ward & Deem drilled the No. 4 Cassie Dye heirs through Injun sand at 1,821 ft. and it was dry and abandoned.

In Ritchie County Hope Construction & Refining Co. completed No. 3 T. C. Hammett in the Grant district in Squaw sand at 2.030 ft., and it is good for 75 bbl. a day. In this district No. 17 Steursburg of Astrom Oil Co. is a ½-bbl. pumper in Injun sand at 1,000 ft.

In Murphy district, Ritchie County, R. C. Jackson completed the deepening of No. 2 Charles Bickerstaff to 2,197 ft., the Injun sand, and it is good for 5 bbl. a day.

In Gilmer County Roberts & Weekley completed the test on the G. O. Bonnett farm in DeKalb district at 1,382 ft. in the Maxton sand, and it is showing for 6 barrels a day.

In Gilmer County, Gilmer County Gas Co. completed a second well on the Cordelia J. Collins farm in Center district at 1,848 ft. After a 180-qt. shot at 1,736-81 ft., it had a volume of 318,000 cu. ft. of gas a day.

In Calhoun County W. V. Knight drilled a dry hole on the J. W. Yoak heirs farm in Sherman district to 1,981 ft.

In Monongalia County J. I. Eddy & Co. completed a gas well on the M. E. Fetty farm in Clay district at 2,447 ft. and it is good for 200,000 cu. ft. a day from the Big Injun and Gantz sands.

In Putnam County Sovereign Gas & Oil Co. completed deepening No. 1 J. N. Roberts in Curry district to 3,670 ft. Brown Shale was at 3,340-3,670 ft. and the well gaged 94,000 cu. ft. a day after a shot.

In Richie County Phillip Lemon completed a gasser on the G. W. Hardbarger farm in Union district in

(Continued on Page 105)

Texas and Louisiana Gulf

By
NEIL WILLIAMS

New Pools in Two Parishes in Louisiana; Extend Fields

HOUSTON, Tex., Nov. 27.—The opening of two pools in St. Martin and St. John the Baptist parishes, a probable discovery in La Fourche Parish, new sand discoveries, and important extensions marked an interesting week of development in the Gulf Coast district.

Shell Oil Co., Inc.'s No. 1 Iberville Land Co., on the Happytown prospect, St. Martin Parish, coastal Louisiana, flowed at the rate of 1,013 bbl. of 39.3-gravity oil per day on a 2-hour potential test. The well was gaged through a ¼-in. choke with tubing pressure 1,875 lb. and casing pressure 1,925 lb. The hole is bottomed at 10,000 ft., with production from perforated casing at 9,745-58 ft. The well is in Section 86-8s-7e, in the northeastern part of the parish, near the Atchafalaya River.

On La Place prospect, St. John the Baptist Parish, Pan American Production Co. is completing No. 1 Mill as a distillate producer at 8,115-22 ft., where a recent drill-stem test recovered six stands of gas-cut mud and distillate. This well was drilled to a total depth of 10,175 ft., and 7-in. casing was cemented at 10,120 ft. Drill-stem testing through perforated casing at intervals from 10,025 ft. to 8,300 ft., showed various amounts of gas, distillate, and salt water.

On the Bay Brussell prospect, La Fourche Parish, Tide Water Associated Oil Co.'s No. 1 Louisiana Delta Farms looms as the discovery well of a field as an electrical survey showed four possible oil and gas sands at intervals from 8,748 to 9,935 ft. Details of the survey are as follows: Six feet of sand from 8,748-54 ft., with 65 mv. porosity and 30 ohms resistivity on normal curve, 3 ohms on third and fourth curve; sand at 8,918-26 ft., 55 mv. porosity and 13 ohms resistivity on normal curve, 16 ohms on third curve and 8 ohms on fourth curve; sand at 9,511-21 ft., 50 mv. porosity and 16 ohms resistivity on normal curve, 28 ohms on third curve and 10 ohms on fourth curve; sand at 9,610-20 ft., 115 mv. porosity and 35 ohms resistivity on normal curve, 250 ohms on fourth curve; sand at 9,929-35 ft., 85 mv. porosity and 50 ohms resistivity on normal curve, 40 ohms on third curve. No drill-stem test was attempted, and the well is coring below 10,185 ft.

On the extreme west flank of the Venice dome, Plaquemines Parish, Tide Water Associated Oil Co.'s No. 6 Buras Levee Board is running casing for a production test after logging oil showings in three new horizons. The hole is bottomed at 10,745 ft., with sand logged at 10,496-10,664 ft., 10,160-10,230 ft., and 9,688-9,730 ft.

Northwest of production in the Eola field, Avoyelles Parish, S. W. Richardson is moving in material for No. 1 W. D. Hass in Section 42-1s-2e. The rig is being moved from No. 1-A Haas, an outpost on the southwest side of the field, recently abandoned at 8,835 ft.

Interest in the Tertiary Wilcox trend sector is centered on two deep tests in Beauregard Parish. California Co.'s No. 2 Long Bell Lumber Co., Section 12-5s-10w, is reported to have topped the Wilcox at 9,960 ft., and the well is coring ahead at 10,078 ft. Republic Production Co.'s No. 2-A Lutcher Moore Lumber Co., Section 1-7s-12w, is drilling in sandy shale at 9,016 ft.

The Chalkley field, Cameron Parish, was extended ½ mile southwest as Shell Oil Co., Inc.'s No. 4 Hanzen was completed for an initial production of 642 bbl. per day, flowing through a 16/64-in. choke. The well was drilled to a total depth of 8,990 ft., and was completed through perforated casing at 8,917-26 ft.

In the Perkins area, Humble Oil & Refining Co. staked location for No. 3 Edgewood Land & Logging Co., Section 5-8s-10w. The area was established several months ago as a gas field. The second well drilled on the structure was abandoned as a dry hole.

Texas Co. is attempting to open a new sand on the Fausse Point dome, Iberia Parish. Two sands showing oil and gas were logged at 5,023-30 ft. and 5,159-90 ft., and 7-in. casing was cemented at 5,314 ft., after rock-salt was topped at 5,408 ft., and cored to a total depth of 5,415 ft.

In Allen Parish Housh & Thompson received a farmout lease at the Ten Mile Creek prospect from Phillips Petroleum Co. and is moving in material for No. 1 Industrial Lumber Co., 466 ft. north and east of the SW cor. Section 1-4s-5w.

Texas Coast

Along the Texas Coast considerable attention was centered on the West Ranch field, Jackson County, where George Greer and others' No. 1 Ward, approximately 3,000 ft. east of production, was preparing to make a production test. Broken sand and shale showing gas was cored in the 5,100-ft. pay, and casing was cemented on bottom at 5,784 ft., after sand showing oil was logged in a 45-ft. section at 5,531-76 ft. The well is 500 ft. east of the Lavaca River in the David Hoffman Survey.

In Matagorda County McDannald Oil Co.'s No. 1 Woodhouse, on the Citrus Grove prospect, is bottomed at 5,813 ft., and 5½-in. casing was cemented at 4,260 ft., preparatory to testing a gas sand indicated on an electrical survey. Location has been made for the company's No. 1 G. W. Shell, 1 mile north in the B. C. Arthur Survey, Lot 7.

In the Clam Lake field, Jefferson County, Shell Oil Co., Inc.'s No. 7 McFaddin is flowing an estimated 8 bbl. of oil per day through a ⅛-in. choke, under a tubing pressure of 1,450 lb. and casing pressure 1,575 lb. The hole is bottomed at 4,003 ft., with 5½-in. casing cemented at 3,964 ft.

Two producers were being added to the Martha field, Liberty County, by Stanolind Oil & Gas Co. No. 1 Tyrell, approximately 2,000 ft. west of production, is testing through perforated casing at 8,050-56 ft. Sand and sandy shale, showing oil, was logged at 8,001-10 ft., and at 8,050-70 ft. No. 1 Palmer, about 1,100 ft. east of production, is bottomed at 8,139 ft., and 5½-in. casing was cemented at 8,130 ft. Sand and sandy shale showing oil was logged at 8,059-8,119 ft.

Phillips Petroleum Co.'s No. 1 Wimhurst, League City field, Galveston County, flowed 9 bbl. of distillate per day through a 9/64-in. choke with tubing pressure 1,500 lb. and casing pressure 1,750 lb. The well was completed in a new sand the previous week at 10,946-62 ft., to become the deepest producing well on the Texas coast.

Wildcat operations in Brazoria County were attracting attention as several important wells has reached critical stages. In the Anchor area Humble Oil & Refining Co.'s No. 1 Mettler, about 1 mile north of the discovery well, is drilling in shale below 9,866 ft., with no showings reported. Glenn McCarthy's No. 1 Salmon-Momma is drilling in shale below 9,920 ft. An electrical survey showed the top of the Frio at 8,820 ft.

In the Alvin area, Humble Oil & Refining Co.'s No. 1 Hiram Moore is drilling in shale below 7,300 ft. Very little information is being released on the well, and it is not known if the Frio has been topped. Leasing and royalty buying is extremely active. In the Bonney area the same company's No. 1 A. M. Smith is drilling in shale below 8,477 ft.

Magnolia Petroleum Co.'s No. 1 R. G. Huntington, approximately 3 miles northeast of the Rosenberg field, Fort Bend County, is drilling in shale and lime below 7,987 ft. The Discorbis Yeguaensis was topped at 7,698-7,708 ft., and the Eponides Yeguaensis at 7,750-67 ft.

Location for a Tertiary Wilcox test is being cleared in Montgomery County for Ralph Sturm and others' No. 1 Thomas Foster estate, in the center of Abraham Pevehouse Survey. The well is approximately 1½ miles west of Todd and others' No. 1 Foster, a dry hole.

In the Lissie area, Wharton County, Frank Campbell and Bennett Oil Co. staked location for No. 1 Harrison & Mitchell, Section 21, G.H.&H. Survey, about 1 mile north of Sun Oil Co.'s No. 1 Poole, a dry hole.

In the Cedar Point field, offshore from Chambers County, in Galveston Bay, Standard Oil Co. of Texas' No. 55-119 State, ½ mile west of production, cored salt water in the Frio sand at 6,250 ft., the total depth, and casing is being cemented for a production test in the Miocene sand.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Hastings field: Standard Oil Co. of Texas' No. 1 Butterfield, sand 6,072-6,113 ft., 577 bbl., ¼-in. choke. Stanolind Oil & Gas Co.'s No. 22-A H. H. Ford, sand 6,112-22 ft., 555 bbl., ¼-in. choke. Stanolind Oil & Gas Co.'s No. 11 Edwards, perforated casing 6,063-78 ft., 586 bbl., ¼-in. choke. Stanolind Oil & Gas Co.'s No. 8 McDonald, 6,085 ft., 344 bbl., ¼-in. choke. Stanolind Oil & Gas Co.'s No. 6 F. B. Ware, perforated casing 6,088-95 ft., 212 bbl., ¼-in. choke.

Chambers County

Anahuac field: Humble Oil & Refining Co.'s No. 42 Middleton, 7,118 ft., 432 bbl., ¼-in. choke. South Cotton Lake field: Humble Oil & Refining Co.'s No. 3-C Lawrence, 6,512 ft., 134 bbl., ⅛-in. choke. Humble Oil & Refining Co.'s No. 1-D V. A. Lawrence, sand 6,523-25 ft., 128 bbl., ⅛-in. choke. Turtle Bay field: Stanolind Oil & Gas Co.'s No. 1 H. B. Amick, 6,610 ft., 127 bbl., ⅛-in. choke.

Fort Bend County

Thompson field: Humble Oil & Refining Co.'s No. 20 Davis, 5,410 ft., 576 bbl., ¼-in. choke.

Galveston County

Dickinson field: Midstates Oil Co.'s No. 1 Weems, 8,937 ft., dry and abandoned.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 6 Hutcheson, perforated casing 5,535-55 ft., gas well. Friendswood field: Humble Oil & Refining Co.'s No. 5 Owens, 5,585-6,044 ft., 600 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 17 West Production Co., sand 6,051 ft., 528 bbl., ¼-in. choke. Tomball field: Humble Oil & Refining Co.'s No. 1 Holmes, 267 bbl., ¼-in. choke.

Jefferson County

Fannett field: Gulf Oil Corp.'s No. 12 Burrell, sand 4,293-4,303 ft., 126 bbl., ⅛-in. choke. Lovells Lake field: Humble Oil & Refining Co.'s No. 12 Broussard, 7,807 ft., 176 bbl., ⅛-in. choke. Stanolind Oil & Gas Co.'s No. 3-A Steinhagen, perforated casing 7,785-7,790 ft., 190 bbl., ⅛-in. choke.

Liberty County

Hardin field: Fohs Oil Co.'s No. 2 Tompkins, perforated casing 7,606-14 ft., 242 bbl., 12/64-in. choke. South Liberty field: Noble & Baker's No. 3 J. D. Welder, sand 3,575-3,602 ft., 115 bbl., pumping.

Wharton County

Spanish Camp field: Houston Oil Co.'s No. 1 Hinze, perforated casing 3,004-13½ ft., dry gas well. Withers field: Texas Co.'s No. 17 Broussard, sand 5,553-58 ft., 108 bbl., ⅛-in. choke. Texas Co.'s No. 65-C Pierce, sand 5,539-44 ft., 39 bbl., ⅛-in. choke.

Matagorda County

Markham field: Hamill and others' No. 4 Rycade,

3,572 ft., 315 bbl., ¼-in. choke. Hamill and others' No. 3 Rycade, sand 3,400-25 ft., 77 bbl., 25 per cent water, pumping.

Rocky Mountain Area

(Continued from Page 90)

ton sand at 2,690-2,746 ft. was dry. There was a show of gas in the base of the Sunburst at 2,773-81 and 2,791-97 ft. It had 200 ft. of oil in the hole from the upper Cut Bank at 2,825-45 ft., and 200 ft. of water at 2,858-78 ft. It had the main pay 2,825-33 ft. Top of lower Cut Bank was at 2,878 ft.

Texas Co.'s No. 2 State M-246, C NE NE Sec. 36-34n-6w. Loc. (first report).
A. B. Cobb-T. T. Co.'s No. 1 Unit D, C SW NE Sec. 18-36n-5w. .M.I.M.
Glacier Prod. Co.'s No. 1 Minette, C NE NW Sec. 34-33n-5w. Loc. (first report).
Texas Co.'s No. 3 Govt., C NE SW Sec. 17-32n-5w. Spdg. 317 ft.
Cobb-Reagan's No. 4 Jackson, SW SW SE Sec. 5-32n-6w. R.U.R.
Texas Co.'s No. 2 State, C NE NE Sec. 36-34n-6w. Loc.
Texas Co.'s No. 3 Tweedy, CWL NW NE Sec. 21-35n-6w. Drlg. 1,960 ft.
Texas Co.'s No. 2 Lindquist, C SW SE Sec. 17-32n-5w. Drlg. 455 ft.
M. R. Wagner, tr.'s No. 2-X Tribal-173, NE SE SE Sec. 12-32n-6w. Drlg. 2,000 ft.
Glacier Prod. Co.'s No. 2 Corrigeux, SW SW NW Sec. 21-33n-5w. Drlg. 2,690 ft.
Glacier Prod. Co.'s No. 2 Rigney, C SE SW Sec. 35-36n-6w. Drlg. 2,225 ft.
Nadeau Bros.' No. 6 Farmers State Bank, 440 ft. from EL, 1,320 ft. from NL Sec. 17-33n-5w. Cmtd. 7-in. at 2,838 ft.; Sunburst at 2,845-53 ft.; tstd. ½ B.O.P.H.
Texas Co.'s No. 9 Tribal-122, CSL SW SW Sec. 32-33n-5w. Drlg. 2,810 ft.
Texas Co.'s No. 3 Hessler, C SE NW Sec. 20-33n-5w. Drlg. 1,150 ft.; Colo. 615 ft.; 10¾-in. at 645 ft.

Liberty County

Coolidge & Coolidge's No. 1 Forseth, CEL SE NE Sec. 8-35n-4e. Drlg. 900 ft.

Toole County

A. E. Crumley & Son's No. 17 Fryberger, NE SE SW Section 24-35n-3w, was a small producer in the Madison at 1,615 ft., total depth. It showed for 6½ bbl. of fluid, 30 per cent water, after acidizing with 500 gal.

Horton & Shaw's No. 1 Ellingson, NE NE NW Section 23-35n-3w, was abandoned at 400 ft. No test.
Casper T. Olen's No. 9 Engemoen, NW NE NW Sec. 14-36n-2w. R.O.G. (first report).
L. J. Yealy's No. 14 Shaw, NW SW NE Sec. 35-36n-2w. R.O.G. (first report).
Preval & Shay's No. 4 Govt., NW NW SW Sec. 11-35n-3w. Drlg. 1,300 ft. (first report).
Lemac Oil Co.'s No. 1, C NE NE Sec. 27-36n-2w. Spdg. 120 ft.
Big West Oil Co.'s No. 14 Dahlquist, SE SW SW Sec. 21-35n-3w. T.D. 1,752 ft.; S.O. 1,742 ft.; prep. to acd.
Nepstad-Montgomery-Fargher's No. 2 Haugen, SE SE SW Sec. 2-35n-3w. T.D. 1,851 ft.; first break 1,836; second break 1,851 ft.; will acd.
S. T. Scotland's No. 3 McNamar, NW NE SW Sec. 29-35n-3w. T.D. 1,774 ft.; acd.; not tstd.
Frazier & Smith's No. 2 Van Note, NE SW NW Sec. 30-35n-2e. S.D. 1,380 ft.
Coolidge & Coolidge's No. 1 Maley, SW NE SE Sec. 31-36n-1w. S.D. 100 ft.
Kippen O. & G. Co.'s No. 1 Solberg, SE SW NE Sec. 20-35n-3w. T.D. 1,904 ft.; prep. to acd.
W. E. Rice Co.'s No. 4 Kearns, Lse. 8, C W½ E½ SE Sec. 18-35n-2w. T.D. 1,570 ft.; rng. 6⅝-in.
C. L. Smith, Agt.'s No. 1 Govt., SW SE NW Sec. 13-35n-2w. S.D. 1,345 ft.
R. G. Parrent's No. 1 Holbrook, C NW NE Sec. 2-36n-3w. S.D. 1,370 ft.

Yellowstone County

Riverton Oil Co.'s No. 1 Fox, CEL NW NE Sec. 14-2n-23e. T.D. 2,150 ft.; cmtg. caves; will U.R. 6⅝-in. to set on bttm.

UTAH

Daggett County

Mountain Fuel Supply Co.'s No. 4 Murphy, SW SE SW Sec. 21-3n-24e. Drlg. 1,265 ft.; 13⅜-in. at 364.

SOUTH DAKOTA

Harding County

South Dakota State Roy. Co.'s No. 1 State, SW NW Sec. 35-18n-1e. Cg. 6,975 ft.

Ohio Fields

(Continued from Page 83)

In Licking County, Mary Ann Township, two dry holes and one oil well were completed in the Berea: Peavy & Son's No. 3 Jesse Smith, Lot 18, first quarter, dry at 625 ft.; William Stricker and others' No. 1 Willis Miller, Lot 7, fourth quarter, showing of gas at 731-44 ft., abandoned.

Medina County, Spencer Township, Ohio Fuel Gas Co.'s No. 1 G. M. Wood, Section 10, is a gas well gaging 2,000,000 cu. ft., open flow, from Clinton sand at 2,477-86 ft.

Meigs County, two Salt sand wells were completed in Rutland Township, Nolan Shuster's No. 2 Robert Molden, Section 4, open flow of 220,000 cu. ft. at 807 ft.; and H. N. Nelson's No. 2 Lelia Holt, Section 10, gaged 100,000 cu. ft. open flow at 830 ft.

Monroe County, Bethel Township, Mack Oil & Gas Co.'s No. 3 J. L. McCurdy, Section 35, is a small gas well producing from the Salt, Maxon, and Injun sands; total depth 1,550 ft.

Noble County, Beaver Township, Corey Co.'s No. 1 William Eagon, Section 23, gaged 47,000 cu. ft. of gas 3 hours after a shot in Berea sand at 1,572-78 ft. Jackson Township, J. L. Skinner's No. 2 Peter Brown, Section 3, was plugged with the tools in the hole at 1,300 ft. Wayne Township, Harry Clymer's No. 2 Samuel Bates heirs, Section 32, gaged 240,000 cu. ft. of gas in the Berea at 1,651 ft.

Richland County, Mifflin Township, L. E. George's No. 1 J. F. Keafer, Section 28, had only 1 foot of Clinton sand at 2,437-38 ft., abandoned at 2,561 ft.

Stark County, Plain Township, East Ohio Gas Co.'s No. 1 John Royer, Section 14, has an open flow of 2,100,000 cu. ft. of gas from Clinton sand at 4,647-68 ft.

Washington County, Barlow Township, Henning & Hall's No. 1 L. Liebrand, Section 3, is a gas well gaging 825,000 cu. ft. from the Injun sand at 1,429 ft. Decatur Township, C. P. Bowman's No. 1 Eda Smith, Section 24, is dry in the Berea; total depth 1,769 ft. Liberty Township, Otto Heidman's No. 2 Mae Mossbury, Section 21, has an open flow of 100,000 cu. ft. of gas in the Germantown sand at 1,140 ft. Henning & Cullen's No. 3 M. Cullen, Section 21, gaged 50,000 cu. ft. of gas at 1,052 ft. Best Run Oil & Gas Co.'s No. 3 Jacob Best, Section 27, is dry in the third Salt sand at 1,163 ft.

Lima Field

Henry County, Harrison Township, N. L. Stevens' No. 1 Sarah Wells, Section 36, is a 6-bbl. settled producer in the Trenton sand at 1,696-1,736 ft.

Greene County, Caesars Creek Township, Military Survey No. 2238, Sun Oil Co. in No. 1 Ed Marshall had difficulty in the drift, skidded the rig, set 8-in. at 300 ft., in the new hole, and is drilling.

Blacksten and others in Franklin County, Madison Township, shot the bottom 70 ft. of Trenton with 120 qt. on their E. J. Simms test, and were cleaning out.

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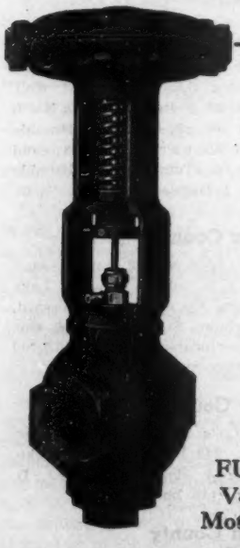

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Michigan Field Report

By
O. C. PRESSPRICH

Kent-Ottawa Area Reports Best of Michigan New Wells

SAGINAW, Mich., Nov. 27.—In the quiet of Michigan's early Thanksgiving observance, oil-well development was featured by completion of three wells with daily potential of 1,200 bbl. or better in the Kent-Ottawa field and the almost complete concentration of activity in the state's southwestern section.

There were 16 new wells completed for potential daily output of slightly under 6,100 bbl. In addition a gas well was developed in Mecosta County. Eleven dry holes were abandoned and location was abandoned temporarily in another instance.

Taggart Brothers, Inc., got the gas well, good for 10,500,000 cu. ft. a day, in Austin Township. Completed at 1,466½ ft. and located almost in the center of the township, it marked renewal of activity there after 3 years.

Fourteen of the new oil wells are in the southwestern part of the state. The two others are in West Branch Township (22n-2e) of Ogemaw County. One is Weber Oil Co.'s No. 2 Hyslop, acidized to 20 bbl. a day, the other Muskegon Development Co.'s No. 4 Barber, good for 50 bbl. a day after acid treatment.

The best producer of the week was Wolverine Natural Gas Corp.'s No. 1 Murray in Section 29, Walker Township, Kent County. After acid potential was 1,600 bbl. a day. The only completion in the Tallmadge Township area of adjoining Ottawa County also was an excellent well, the Twin Drilling Co.'s No. 4 Park being checked at 1,400 bbl. a day after acid. The other big well of the week was No. 2 Thurkettle, an H. C. Williams development, also in Section 29 of Walker, which was good for 50 bbl. an hour, naturally. The six other Kent County completions ranged in productivity from 19 to 44 bbl. a day.

In Allegan County two producers were completed in Overisel Township, two more in the New Salem field. They ranged from 100 bbl. to 215 bbl. a day.

Several tests to extend the Kent-Ottawa production were unsuccessful as Century Oil & Gas Co.'s No. 1 Greenridge Country Club in Section 1 of Walker was completed dry. Gordon Oil Co.'s No. 1 Michigan Trust Co. likewise was abandoned as a dry hole. W. L. Thouriby's wildcat No. 1 Doyle in Vergesse Township of Kent County failed to indicate possibilities despite 2,496 ft. of drilling, and likewise was abandoned, as was a Voorhees Drilling Co. failure in Section 23 of Wyoming. Two other completions in that same section were small producers.

Figuring in other failures were two tests in Allegan County, abandoned wildcats in Chester and Zeeland Townships of Ottawa County and a test in the Central Michigan Wisner Township field in Tuscola County. The only activity in Van Buren County was abandonment of a test in Columbia Township.

Interest in the Clare County field was in the Peltier's No. 1 Myers extension in Redding Township. It is a mile north of Redding production. Talbot Oil Co. was testing pay in the No. C-1 State-Redding in the far southwestern edge of Redding production. A mile northwest of Crystal-Ferris production, Prudential Oil & Gas Corp. was nearing Michigan stray with its Ferris Township No. 1 Douglass-Wilson test.

Only 25 new drilling permits were issued during the week by the state Conservation Department, 10 of those being for Kent developments, 5 for tests in Allegan County, 4 for Ottawa, 2 for Arenac, 1 each for Clare, St. Joseph, Berrien and Van Buren counties.

The week's completions summary follows:

Allegan County

Ganges Township (2n-16w)—At 1,360 ft., Blood & Hendershott abandoned No. 1 Louis Knox, NW SE NW Section 4, as a dry hole.

Overisel Township (4n-14w)—Fortney Oil Co.'s No. 1 Harm and Alice Boerman, NE NE SW Section 27, rated 150 bbl., naturally, being completed at 1,469 ft., while Lentz & Miller, Inc., and others' No. 1 J. G. and Lida Berens, NW SE SE Section 27, was completed at a depth of 1,588 ft. for natural production of 100 bbl. a day.

Salem Township (4n-13w)—After acid initial was 215 bbl. a day from W. R. Borough, Inc.'s No. 3 J. Shuck, SW NW NW Section 2, completed at depth of 1,698 ft. Voorhees Drilling Co. and others' No. 2 Joseph Schumaker estate, NE NW NW Section 12, rated 100 bbl. a day, after acid, being completed at 1,601 ft. Regal Dutch Petroleum Co.'s No. 1 Herbert Brenner, NE SE SE Section 24, was abandoned as dry at 1,616 ft.

Kent County

Walker Township (6n-12w)—Certain-Teed Products Co.'s No. 3 fee, SW NE NE Section 4, completed at 1,776 ft., rated 241 bbl. a day after acid treatment.

Walker Township (7n-12w)—Century Oil & Gas Co.'s No. 1 Greenridge Country Club extension test, NE NE NW Section 1, failed and was abandoned with drilling at 2,115 ft. Gordon Oil Co.'s No. 1 Michigan Trust Co. test, SW SE SE Section 20, likewise was dry, being abandoned at the 1,935-ft. stage. Potential was 400 bbl., naturally, from Smith Petroleum Co. and others' No. 1 Thomas F. Molloy, SW SW SW Section 28, completed at depth of 1,910 ft. Ide & Glavin Development Corp.'s No. 4 P. J. Taalman, NE SW SW Section 29, completed at 1,900 ft., rated 360 bbl., naturally, but Michigan Devonian Petroleum Co.'s No. 1 Snyder-McCrath and others, SW NE NE Section 29, rated only 19 bbl. a day after acid at 1,910 ft. H. C. Williams' No. 2 Jane Thurkettle, NW NE SW Section 29, completed at 1,890 ft., was rated at 1,200 bbl., naturally. Best showing was from Wolverine Natural Gas Corp. and others' No. 1 James Murray, SW SW NW Section 29, where initial, after acid, was 1,600 bbl. at 1,905 ft. Smith Petroleum Co. and others' No. 4 Julia O'Sullivan, SW SW SW Section 30, did 100 bbl. a day, naturally, at 1,856 ft.

Wyoming Township (6n-12w)—Two 50-bbl. wells and a dry hole were completed in Section 23, the failure being Voorhees Drilling Co.'s No. 1 W. Gleason, SE SW NW, abandoned at 2,102 ft. Others are Crown Development Co.'s No. 3 Land Association, NE NW SE, acidized at 1,900 ft., and Fisher & McCall Oil & Gas and others' No. 1 Eva Pratt, SE SE NE, completed at 1,909 ft., and acid treated.

Vergennes Township (7n-9w)—W. H. Thouriby's No. 1 Doyle wildcat, NW SE SE Section 6, was abandoned dry at 2,496 ft.

Mecosta County

Austin Township (14n-9w)—Taggart Brothers, Inc.'s No. 24 fee, C NW¼ Section 10, was completed as a natural-gas well producing 10,500,000 cu. ft. a day at 1,466½ ft.

Ogemaw County

West Branch Township (22n-2e)—Muskegon Development Co.'s No. 4 Cora Barber, SE SE NW Section 28, completed at 2,730 ft. was acidized for production of 77 bbl. a day. Weber Oil Co.'s No. 2 Fanny Hyslop, SE NE NW Section 28, was acid treated to bring output to 20 bbl. a day at 2,733 ft. Weber Oil Co. temporarily abandoned location for No. 2 Martin Jensen, SE SE SW Section 35.

Ottawa County

Chester Township (9n-13w)—Dry at 2,515 ft., No. 1 H. H. Trilck, NE NW NE Section 31, was abandoned by Columbia Oil & Gas Co.

Tallmadge Township (7n-13w)—After acid treatment production increased to a potential of 1,400 bbl. a day from Twin Drilling Co.'s No. 4 Park, SE NE NE Section 25.

Zeeland Township (5n-14w)—Freeman Oil Co.'s No. 1 Vander Poppen, SW SW SW Section 4, was abandoned as a dry hole at a total depth of 1,682 ft.

Tuscola County

Wisner Township (14n-7e)—Norman Carr's No. 1 Leroy Palmanter, NE NE NW Section 25, was dry and abandoned at a depth of 3,462 ft.

Van Buren County

Columbia Township (1s-15w)—Miller Brothers' No. 3 Ada Ford, SW NE SW Section 12, was a dry hole, being abandoned at a depth of 1,192 ft.

MICHIGAN CRUDE-OIL RUNS
(Daily averages for October 1939)

	No. of wells	Av. daily prod.
Porter—Yost	365	4,912
Greendale—Chippewa	198	1,291
Geneva—Midland	2	10
Sherman—Isabella	58	1,113
Wise—Isabella	14	1,083
Vernon-Leaton—Denver	78	747
Freeman—Redding	119	14,579
Grant—Clare	3	16
Beaverton	20	127
Edenville	31	544
Bentley—Gladwin	35	433
Buckeye-Wicklund—Oard	365	4,875
Ogemaw	229	1,189
Secord—Gladwin	2	12
Adams—Arenac	14	135
Clayton—Arenac	52	1,227
Tuscola	4	150
Saginaw—Bay area	61	84
Birch Run	25	35
Dundee—Monroe	4	109
Montcalm County	43	366
Allegan (7 old pools)	303	3,901
Allegan—New Salem	73	4,666
Ottawa County	2	194
Muskegon	79	117
Walker-Wyoming—Tallmadge	189	13,216
Bloomingdale—Columbia	269	9,215
Bangor—Van Buren	10	346
Total	2,647	64,692

Eastern Fields

(Continued from Page 102)

Maxton sand, and it gages 657,000 cu. ft. a day. The Injun sand was missing. Here, Moats & Barker completed the second test on the H. C. Moats farm in the Injun sand at 2,180 ft., and it is good for 94,000 cu. ft. a day. In Grant district W. H. Jones' well, on the Cuthbert & Carle heirs farm completed at 732 ft. is good for 20,000 cu. ft. a day.

In Roane County Morley Oil & Gas Co.'s No. 3 James S. White in Geary district completed at 988 ft. with the Salt sand at 986-988 ft., gaged 400,000 cu. ft. a day. In Harper district Harmony Gas Co. drilled a dry hole on the W. P. Harper farm to 2,552 ft. It was dry in all sands.

In Wayne County Chartiers Oil Co., on the Burnie Scott farm in Butler district drilled to 3,748 ft. It gages 260,000 cu. ft. a day from the Corniferous lime, topped at 2,989 ft.

In Union district, Wayne County, Southern West Virginia Gas Corp. completed No. 23 B. J. Prichard at 3,426 ft. Corniferous lime was topped at 3,426 ft. It gaged 500,000 cu. ft. a day. Industrial Gas Co. completed the test on the J. D. Smith farm at 2,902 ft., in Brown shale with a final gage of 168,000 cu. ft. a day.

Oriskany Gas Field

No wells were completed in the Oriskany gas field in Kanawha County.

Outside Deep Tests

In Washington district, Kanawha County, the Owens-Libby-Owens Gas Department deepened a well on the John P. Toney and others' land to 4,780 ft., and with the Oriskany topped at 4,733 ft., there was a gage of 147,000 cu. ft. a day.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ont., Nov. 27.—Crude allowables for Turner Valley, issued by the Alberta Conservation Board last week, reduced the total from 26,000 to 20,000 bbl. a day. Provision had, however, to be made for three new completions, so that the net reduction for wells listed in the last previous schedule was 7,581 bbl.

In the new list, Home Oil Co.'s No. 2 Millarville, in North Turner Valley, is still the largest well, with quota reduced from 859 to 548 bbl.; Royalite Oil Co.'s No. 42, LSD 4, Section 32-18-2w5, a new completion, 497 bbl.; Anglo-Canadian Oil Co.'s No. 6, 463 bbl., and Royal Canadian Oil Co.'s No. 3, LSD 12, Section 29-18-2w5, another new completion, 456 bbl. Ninety-one crude producers are listed. Practical termination of harvest operations, with a consequent lessened demand for petroleum products, is the main reason for the decrease in allowables.

Record of Discovery Well

In the new schedule, Turner Valley Royalties' No. 1, LSD 13, Section 28-18-2w5, is reduced from 150 to 108 bbl. This was the discovery well which, in June 1936, proved the west flank crude area, west of the original gas-naphtha producers. Up to October 1, 1939, it had produced 537,759 bbl., with a gross revenue of $823,887, paying $493,954 in net royalties and $26,500 in dividends. The amount of crude still recoverable from this well is estimated at 522,241 bbl. Its initial production was 900 bbl. per day.

Tests in the Lime

In West Central Turner Valley, Argus Royalties' No. 1, LSD 14, Section 25-19-3w5, finished in the lime at 7,384 ft., is reacidizing and testing. Brown Oil Corp.'s No. 3, 2 miles southeast, tentatively abandoned last year as a dry hole after drilling to the black lime, has shown signs of coming into production and is being retested.

In Section 6-19-2w5, East Crest Oil Co.'s No. 4, LSD 8, finished originally as a small producer, is getting increased production with the aid of waste gas from Vulcan-Brown's No. 1. A compressor will ultimately be installed to handle production.

In Section 16-18-2w5, Okalta Oil Co.'s No. 7, LSD 3, has been finished at 7,425 ft., 455 ft. in the Madison lime, but not yet tested. The well is in the far south end of the field, just north of National Petroleum Corp.'s No. 2.

In the southwest end of the field Northwest-Hudson Bay Co.'s No. 2, LSD 9, Section 8-18-2w5, got the Madison lime at 7,150 ft. and has resumed after cementing casing at 7,165 ft.

In North Turner Valley, Royalite Oil Co.'s No. 43, LSD 2, Section 22-20-3w5, is below 8,471 ft. after getting the Madison lime at 8,295 ft.

West Central Field

In Section 18-19-2w5, West-Central Turner Valley, Davies Petroleums' No. 5 (formerly Davolite's No. 1), LSD 10, is preparing to resume from 1,830 ft. In Section 13-19-3w5, Arrow's No. 1, LSD 16, is in the Belly River formation below 3,683 ft. In Section 8-19-2w5, South West Petroleums' No. 3, LSD 3, is in the Benton formation below 2,212 ft. In Section 7-19-2w5, where Anglo-Canadian's No. 8 has temporary allowable of 228 bbl., considerable new drilling will be done. Anglo-Canadian's No. 9 has been spotted in LSD 14 and Royalite Oil Co.'s No. 48 in LSD 10. Pacific Petroleums' No. 5 has location in LSD 5. The new tests are, respectively, north, east and southwest of Anglo-Canadian's No. 8.

In Section 6-19-2w5 East Crest Oil Co.'s No. 5, LSD 9, is below 3,075 ft. Kamalta Oils' No. 1, LSD 1, is below 700 ft.

In Section 5-19-2w5 Royalite Oil Co.'s No. 45, LSD 14, is below 6,045 ft. Vanpeg Royalties' No. 1, LSD 9, is below 4,031 ft.

Border Fields

On the Spring Coulee structure south of Lethbridge E. L. Cords No. 1, LSD 16, Section 35-3-23w4, bottoming at 6,081 ft., some 93 ft. in the Madison limestone, is gun perforating and acidizing several promising horizons in and above the lime. The log shows alternative layers of porous oil-bearing lime and a tight formation, with some gas but no water. High-pressure control head and tankage have been set up.

In the Taber field Border Petroleums' No. 1, LSD 5, Section 32-19-17w4, bottoming at 3,465 ft. in the top of the lime, is recementing for water shutoff.

In the Cardston area Franco Oils' No. 2, LSD 1, Section 10-3-28w4, is below 1,320 ft.

East Central Alberta

In the Vermilion field, East Central Alberta, Franco-Vermilion's No. 1, Section 14-49-5w4, is below 1,298 ft.

In the Ribstone-Blackfoot area Highwood-Sarcee Oil Co.'s No. 1, LSD 1, Section 36-47-2w4, is below 1,760 ft. with the lime contact expected between 1,800 and 1,900 ft. Gas, corresponding to the first gas sand of the Lloydminster field, was struck at 1,400 ft. and a further showing at 1,740 ft.

Test in the Foothills

On the Brazeau structure in the northern foothills Home Oil Co.'s No. 1, LSD 16, Section 7-43-17w5, has cement work completed for installation of rotary outfit to resume from 6,665 ft.

West Side Drilling

In Section 32-18-2w5 Pacific Petroleums has secured permit for No. 4 in LSD 3. Location is between Pacific (formerly West Turner) Petroleums' No. 1 and Royalite's No. 42, recently completed as a large producer.

Vantage Oils' No. 1, LSD 12, same section, which has been standing at 1,706 ft., has been taken over by Royal Canadian Oil Co., which is rigging rotary equipment, and will complete the well.

In Section 31-18-2w5 Anglo-Canadian Oil Co.'s No. 7, LSD 9, is below 6,242 ft. In Section 29-18-2w5 Commoil's No. 3, LSD 13, is waiting for rotary equipment. Command Oils' No. 2, LSD 11, is in the Blairmore formation below 7,069 ft. In Section 20-18-2w5 York Oils' No. 3, LSD 3, is below 627 ft. In Section 17-18-2w5 Extension Royalties' No. 3, LSD 13, is below 128 ft. Royalite Oil Co.'s No. 46, LSD 2, is in the Blairmore formation below 6,742 ft.

Calmont Development

In the northern end of West Central Turner Valley Calmont-Northwest Co.'s No. 1, LSD 3, Section 18-19-2w5, is working on derrick. This is the first of seven tests to be drilled on acreage in S½ Section 18-19-2w5 and SE¼ Section 36-19-3w5, taken over by Northwest Co., subsidiary of Imperial Oil, from Calmont Oils. Location of No. 1 is about ½ mile east of Sun Ray Petroleums' No. 1, while the other block of acreage is immediately northwest of Argus Royalties' No. 1. After drilling costs are returned, production will be shared by the two companies, Northwest Co. handling the drilling.

North Turner Valley

In North Turner Valley two wells of the Home Oil Co. have encountered the Home sand, near the bottom of the Blairmore formation, showing that the formations log satisfactorily with those of the South Turner Valley crude area. Home's No. 4, LSD 9, Section 28-20-3w5, is below 7,133 ft. after getting the Home sand at 7,037 ft. Home's No. 3, LSD 1, Section 33-20-3w5, is below 6,329 ft. after getting the Home sand at 6,250 ft. The Blairmore formation is considerably thicker than in the south field. Home's No. 2 Millarville, the largest producer in Turner Valley, got the Home sand at 6,730 ft. and the Madison lime at 8,032 ft. Home Oil Co. is preparing tanks and separators to serve all the wells close to No. 2 producer, and is installing gathering lines and equipment.

In Section 27-20-3w5 Foothills Oil & Gas Co.'s No. 6 has been located on C.P.R. land in LSD 5.

Ontario Gasser

In the Malahide field, Elgin County, Ontario, Union Gas Co.'s No. 25, SE¼ Lot 16, Concession 5, finished at 1,108 ft. with a production of over 1,000,000 cu. ft. a day from the Guelph-Niagara formation. Union's No. 26, Lot 28, Concession 5, finished at 1,057 ft. with something less than 1,000,000 cu. ft.

It Screws Right Onto Your Line—No Bourdon Tube to Clog Up! The Abercrombie Pressure Gauge is the only pressure gauge in the oil fields which does not employ a Bourdon tube. It, therefore, has no long length of small tubing to become clogged up . . . the gauge screwing directly onto the line being measured. This valuable feature is only one of the numerous advantages resulting in the quick world-wide acceptance of this rugged gauge, a product of Abercrombie Pump Company, Houston, Texas. Full Details in your Composite Catalog.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, county and location—	S.T.R.	Depth	Status
General Pet., No. 15 Poggi, Torrance, Los Angeles	30- 4-13	5,175	flow 85 b.d.
Union Oil, No. 73 Callender, Dominguez, Los Angeles	29- 3-13	1,980	sd. sh. drig.
Union Oil, No. 74 Callender, Dominguez, Los Angeles	29- 3-13	6,950	sd. sh. drig.
Shell Oil, No. 100 Reyes, Dominguez, Los Angeles	33- 3-13	6,620	sd. sh. drig.
Havenstrite, R. E., No. 1 Larronde, Dominguez, L. A.	32- 3-13	6,695	sd. sh. drig.
Barnsdall Oil, No. 1 Santa Fe, Rosecrans, Los Angeles	20- 3-13	7,091	sd. sh. drig.
Averill, George, No. 3 South, Rosecrans, Los Angeles	20- 3-13	8,780	O.S. drig.
St. Anthony Oil, No. 1 Gordon, Rosecrans, Los Ang.	19- 3-13	2,977	sd. sh. drig.
Univ. Consd. Oil, No. 18 Trust, Rosecrans, Los Angeles	18- 3-13	6,988	sd. sh. drig.
Casa Grande Oil, No. 1 Lopez, San Fernando, L. A.	1- 2-15	2,190	sd. sh. drig.
Tide Water A. O., No. 3 Porter, Aliso Canyon, L. A.	27- 3-16	1,180	sd. sh. drig.
Tide Water A. O., No. 12 Porter, Aliso Canyon, L. A.	27- 3-16	5,590	hd. sd. drig.
Tamas Oil, No. 1 Perkins, Newhall, Los Angeles	14- 3-16	3,228	sd. sh. drig.
Consolidated Pet., No. 4 Needham, Newhall, L. A.	13- 3-16	3,690	hd. sd. drig.
Barnsdall Oil, No. 8 R. S. F., Newhall, Los Angeles	27- 4-17	5,751	sd. sh. drig.
General Pet., No. 101 P.E., Wilmington, Los Angeles	35- 4-13	2,080	sd. sh. drig.
Bernstein, Simon, No. 12 Harbor, Wilmington, L. A.	35- 4-13	3,595	flow 256 b.d.
Gremac Oil, No. 3 Harbor, Wilmington, Los Angeles	4- 5-13	2,053	sd. sh. drig.
Hollywood Oil, No. 8 Baxter, Wilmington, Los Ang.	35- 4-13	3,251	O.S. drig.
Inter-Counties Pet., No. 1 Edgar, Wilmington, L. A.	35- 4-13	1,847	sd. sh. drig.
Jackson Expl., No. 1 Workman, Wilmington, L. A.	35- 4-13	2,990	sd. sh. drig.
L. A. Basin Drig., No. 3 Kupfer, Wilmington, L. A.	35- 4-13	2,130	sd. sh. drig.
Long Beach Dev., No. 7-W Harbor, Wilmington, L. A.	3- 5-13	4,034	recmtd. 3,650
Royalty Service, No. 3 Santa Fe, Wilmington, L. A.	33- 4-13	3,600	redrig. 3,298
Royalty Service, No. 7-B Nelson, Wilmington, L. A.	33- 4-13	4,461	sd. sh. drig.
Richfield Oil, No. 32 Pac. Dock, Wilmington, L. A.	35- 4-13	3,336	completing
Union Pacific R. R., No. 119, Wilmington, Los Angeles	3- 5-13	3,898	scrape hole
Union Pacific R. R., No. 122, Wilmington, Los Angeles	3- 5-13	2,640	sd. sh. drig.
Union Pacific R. R., No. 123, Wilmington, Los Angeles	4- 5-13	3,180	sd. sh. drig.
Union Pacific R. R., No. 124, Wilmington, Los Angeles	4- 5-13	2,442	sd. sh. drig.
Union Pacific R. R., No. 126, Wilmington, Los Angeles	4- 5-13	2,897	sd. sh. drig.
Union Pacific R. R., No. 19-E, Wilmington, L. A.	3- 5-13	4,005	completing
Zephyr Oil, No. 2 Harbor, Wilmington, Los Angeles	33- 4-13	2,640	sd. sh. drig.
Kern Oil, No. 31 Monterey, Montebello, Los Angeles	2- 2-12	7,070	sd. sh. drig.
Kern Oil, No. 35 Monterey, Montebello, Los Angeles	2- 2-12	6,066	sd. sh. drig.
Union Oil, No. 1 Wilcox, Montebello, Los Angeles	11- 2-12	6,695	flow 581 b.d.
Union Oil, No. 6 Wilcox, Montebello, Los Angeles	11- 2-12	7,450	tested wet
Union Oil, No. 35 La Merced, Montebello, Los Angeles	1- 2-12	7,535	O.S. drig.
Albertson Oil, No. 2 Schnakenberg, Montebello, L. A.	3- 2-12	4,681	sd. sh. drig.
Angie Oil, No. 1 Community, Montebello, Los Angeles	11- 2-12	6,679	sd. sh. drig.
Beacon Oil, No. 1 Caneer, Montebello, Los Angeles	11- 2-12	7,625	flow 200 b.d.
Bush Oil, No. 1 Mihlfred, Montebello, Los Angeles	3- 2-12	7,694	tested wet
Bush Oil, No. 1 Zanetti, Montebello, Los Angeles	3- 2-12	7,692	flow 425 b.d.
Caminol Co., No. 3-17 Cowan, Montebello, L. A.	3- 2-12	7,640	cleaning out
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11- 2-12	7,657	liner froze
Crestline Oil, No. 1 Beverly, Montebello, L. A.	11- 2-12	7,640	flow 248 b.d.
Crail Bros., No. 2 Cowan, Montebello, Los Angeles	1- 2-12	7,635	flow 520 b.d.
Dutch Oil, No. 1 Schelnik, Montebello, Los Angeles	3- 2-12	7,460	sd. sh. drig.
Fremont Oil, No. 1 Aldrich, Montebello, Los Angeles	12- 2-12	6,880	sd. sh. drig.
Fremont Oil, No. 1 Moynier, Montebello, Los Angeles	12- 2-12	4,674	sd. sh. drig.
Fullerton Oil, No. 2 Scott, Montebello, Los Angeles	1- 2-12	7,613	flow 216 b.d.
Fullerton Oil, No. 3 Scott, Montebello, Los Angeles	1- 2-12	5,961	sd. sh. drig.
Golden Eagle Oil, No. 1 Lehman, Montebello, L. A.	10- 2-12	6,080	sd. sh. drig.
Golden Eagle Oil, No. 2 Lehman, Montebello, L. A.	10- 2-12	5,975	sd. sh. drig.
Herley-Kelly, No. 2 De Staute, Montebello, L. A.	11- 2-12	6,092	sd. sh. drig.
Larson Drig., No. 3 Van Deusen, Montebello, L. A.	11- 2-12	7,418	sd. sh. drig.
Master Pet., No. 1 Grant, Montebello, Los Angeles	2- 2-12	7,450	O.S. drig.
M. O. C. Oil, No. 1 Zinn, Montebello, Los Angeles	11- 2-12	5,643	sd. sh. drig.
Mabee Co., No. 37 Monterey, Montebello, Los Angeles	3- 2-12	850	sd. sh. drig.
Mono Oil, No. 1 Foreman, Montebello, Los Angeles	2- 2-12	7,620	flow 250 b.d.
Montebello Oil, No. 1 Nordon, Montebello, L. A.	3- 2-12	7,590	O.S. drig.
Pacific-Amer. Oil, No. 1 Groen, Montebello, L. A.	11- 2-12	7,649	flow 230 b.d.
Pueblo Oil, No. 2 Bird, Montebello, Los Angeles	11- 2-12	5,691	sd. sh. drig.
Pongratz Pet., No. 2 Newmark, Montebello, L. A.	3- 2-12	7,653	completing
Rainbow Pet., No. 1 Beverly, Montebello, L. A.	11- 2-12	2,961	sd. sh. drig.
Shoreline Drig., No. 1 Mont., Montebello, Los Angeles	11- 2-12	2,880	sd. sh. drig.
Sunset Oil, No. 1 Robinson, Montebello, Los Angeles	12- 2-12	7,486	O.S. drig.
Star Pet., No. 1 Caneer, Montebello, Los Angeles	11- 2-12	7,620	completing
Traders Oil, No. 2 Center, Montebello, Los Angeles	2- 2-12	7,675	completing
United Mont. Oil, No. 3 Lot, Montebello, Los Angeles	11- 2-12	7,650	flow 335 b.d.
Winlock Oil, No. 1 Win, Montebello, Los Angeles	11- 2-12	4,082	sd. sh. drig.
Wood-Callahan Oil, No. 1 Thill, Montebello, L. A.	11- 2-12	7,630	flow 399 b.d.
Wood-Callahan Oil, No. 2 Todd, Montebello, L. A.	2- 2-12	4,455	sd. sh. drig.
York Oil, No. 6 Mulholland, Montebello, Los Angeles	2- 2-12	7,630	cleaning out
Allied Pet., No. 34 Signal, Long Beach, Los Angeles	30- 4-12	3,050	sd. sh. drig.
Atlantic Oil, No. 14 Signal, Long Beach, Los Angeles	30- 4-12	1,972	sd. sh. drig.
Dormax Oil, No. 1 Signal, Long Beach, Los Angeles	30- 4-12	10,200	O.S. drig.
Richfield Oil, No. 8-B City, Long Beach, Los Angeles	29- 4-12	4,175	cmtd. 4,171
El Hondo Pet., No. 1 Venago, Long Beach, L. A.	24- 4-13	10,093	O.S. drig.
Union Oil, No. 24 Chapman, Richfield, Los Angeles	29- 3- 9	4,852	redrig. 2,998
Welco Oil, No. 1 Yorba, Richfield, Los Angeles	28- 3- 9	1,687	sd. sh. drig.
Master Pet., No. 1 Wright, East Coyote, Orange	10- 3- 9	4,208	sd. sh. drig.
Thompson, M. N., No. 1 Mesa, Costa Mesa, Orange	9- 6-10	952	sd. sh. drig.
Southwest Expl., No. 21 State, Huntington B., Orange	10- 6-11	5,000	pump 586 b.d.
Southwest Expl., No. 24 State, Huntington B., Orange	10- 6-11	2,191	sd. sh. drig.
Owen, W. D., No. 1 Montgomery, Hunting. B., Orange	36- 5-11	3,904	idle
Alabama Oil, No. 1 Rochester, Huntington B., Orange	2- 6-11	3,130	P.B. 2,750

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, county and location—	S.T.R.	Depth	Status
Navy Oil, No. 1 O'Donnell, Santa Maria, San. Barbara	29-10-34	4,679	sd. sh. drig.
Shell Oil, No. 1 Barrett, San Marcos, Santa Barbara	18- 6-29	614	sd. sh. drig.
Coronet Oil, No. 4 Crown, Ojai, Ventura	17- 4-21	579	sd. sh. drig.
Rilling, H. L., No. 1 Camden, S. Mountain, Ventura	13- 3-21	2,498	sd. sh. drig.
Savage Oil, No. 8 Calumet, Shiells Canyon, Ventura	3- 3-19	2,425	rebldg. rig
Renard Oil, No. 1, Sespe, Ventura	6- 4-19	906	sd. sh. drig.
Continental Oil, No. 12 Grubb, San Miguelito, Vent.	24- 3-24	7,314	flow 728 b.d.
Continental Oil, No. 13 Grubb, San Miguelito, Vent.	24- 3-24	608	sd. sh. drig.
Continental Oil, No. 14 Grubb, San Miguelito, Vent.	24- 3-24	5,797	sd. sh. drig.
C. C. M. Oil, No. 2-B Hobson, Rincon, Ventura	8- 3-24	4,046	redrig. 4,040
C. C. M. Oil, No. 28-B Hobson, Rincon, Ventura	16- 3-24	4,750	sd. sh. drig.
Tide Water A. O., No. 42 V.L.W., Ventura A., Ventura	23- 3-23	9,120	recmtd. 9,120
Tide Water A. O., No. 44 V.L.W., Ventura A., Ventura	23- 3-23	9,020	sd. sh. drig.
Tide Water A. O., No. 15 McGonigle, Vent A., Ventura	23- 3-23	10,050	completing
Tide Water A. O., No. 16 McGonigle, Vent. A., Ventura	23- 3-23	7,788	sd. sh. drig.
Tide Water A. O., No. 120 Lloyd, Vent. A., Ventura	27- 3-23	5,430	sd. sh. drig.
Tide Water A. O., No. 121 Lloyd, Vent. A., Ventura	23- 3-23	9,580	sd. sh. drig.
Tide Water A. O., No. 20 Hartman, Vent. A., Ventura	22- 3-23	5,994	sd. sh. drig.
Tide Water A. O., No. 21 Hartman, Vent. A., Ventura	22- 3-23	6,170	sd. sh. drig.
Shell Oil, No. 103 Taylor, Ventura Ave., Ventura	21- 3-23	8,320	sd. sh. drig.
Shell Oil, No. 106 Taylor, Ventura Ave., Ventura	29- 3-23	6,697	sd. sh. drig.
Shell Oil, No. 107 Taylor, Ventura Ave., Ventura	29- 3-23	5,740	flow 605 b.d.
Shell Oil, No. 108 Taylor, Ventura Ave., Ventura	29- 3-23	8,072	sd. sh. drig.
Cal. Alliance Pet., No. 1 Hartman, Vent. A., Ventura	22- 3-23	7,555	flow 288 b.d.
Brit. Amer. Pet., No. 9 Hartman, Vent. A., Ventura	21- 3-23	5,486	sd. sh. drig.
Lloyd Corp., No. 3 Dabney, Ventura Ave., Ventura	23- 3-23	10,360	will P.B.
Lloyd Corp., No. 4 Dabney, Ventura Ave., Ventura	23- 3-23	9,591	sd. sh. drig.
Belridge Oil, No. 1-26, North Belridge, Kern	1-28-20	1,866	sd. sh. drig.
Belridge Oil, No. 4-27, North Belridge, Kern	27-27-20	8,515	redrig. 6,069
Belridge Oil, No. 28-15, North Belridge, Kern	28-27-20	8,622	flow 120 b.d.
Abbott, F. E., No. 1 Gamble, Blackwell's Cor., Kern	7-27-20	1,220	cleaning out
McDonald & Dearin, No. 3 Kernco, Kern Front, Kern	10-28-27	1,990	gr. sh. drig.
Sleeper Ridge Oil, No. 1 Kern, Kern River, Kern	15-29-28	1,801	cleaning out
D. & D. Oil, No. 8 Kern, Kern River, Kern	34-28-28	565	rig to pump
D. & D. Oil, No. 10 Kern, Kern River, Kern	34-28-28	495	O.S. drig.
D. & D. Oil, No. 12 Kern, Kern River, Kern	34-28-28	475	P.B. 425
D. & D. Oil, No. 13 Kern, Kern River, Kern	34-28-28	350	sd. sh. drig.
Helm & Smith, No. 16 Kern, Kern River, Kern	34-28-28	351	sd. sh. drig.
Crestmont Oil, No. 2 Buchner, Mount Poso, Kern	20-26-28	1,562	O.S. drig.
Ring Oil, No. 8 Shapiro, Mount Poso, Kern	32-26-28	1,710	pump 329 b.d.
Ring Oil, No. 5 Bohen, Mount Poso, Kern	32-26-28	1,645	bailing
Hill & Associates, No. 1-A Hill, Mount Poso, Kern	35-26-28	980	dry; abd.
Caminol Co., Ltd., No. 1-18 Poso, Mount Poso, Kern	24-26-27	2,140	sd. sh. drig.
Crusaders Oil, No. 1 Quinn, Jasmine, Kern	9-25-27	2,880	sd. sh. drig.
Hogan Pet., No. 1 Wible, Mountain View, Kern	23-30-29	6,420	sd. sh. drig.
Allied Pet., No. 33 Allied, Mountain View, Kern	19-30-29	4,640	cleaning out

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrig., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrkd. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

O'Reilly, Francis, No. 2 Seale, Edison, Kern	5-30-29	4,103	C.P. 4,090
El Tejon O. & R., No. 1 Douglas, Edison, Kern	32-29-29	3,688	sd. sh. drlg.
Texas Co., No. 1 Mott, Arvin, Kern	9-31-29	4,880	sd. sh. drlg.
Richfield Oil, No. 2 Mott, Arvin, Kern	9-31-29	6,155	flow 360 b.d.
Western Gulf Oil, No. 44-B, KCL, Fruitvale, Kern	22-29-27	3,857	P.B. 3,817
Western Gulf Oil, No. 12 Red Ribbon, Fruitvale, Kern	27-29-27	4,009	rig to pump
Meridian Pet., No. 2 Deep Test, Fruitvale, Kern	23-29-27	3,742	tested wet
Richfield Oil, No. 1, KCL, Fruitvale, Kern	29-29-27	4,440	looks good
Union Oil, No. 4-23 Bowerbank, Goose Lake, Kern	25-29-24	10,845	sd. sh. drlg.
Trico O. & G., No. 1 Tulare, Delano Gas Field, Kern	27-24-23	2,470	gas sand
Standard Oil, No. 3 Mushrush, Wasco, Kern	7-27-24	8,640	sd. sh. drlg.
Union Oil, No. 41-34, KCL, Rio Bravo, Kern	34-28-25	11,475	flow 1,130 b.d.
Superior Oil, No. 1 Smith, Rio Bravo, Kern	34-28-25	11,247	O.S. drlg.
Standard Oil, No. 1 Ross, Greeley, Kern	20-29-26	11,525	looks wet
Standard Oil, No. 11-20, KCL, Greeley, Kern	18-29-26	11,240	hd. sh. drlg.
Standard Oil, No. 11-21, KCL, Greeley, Kern	18-29-26	10,282	sd. sh. drlg.
Standard Oil, No. 12-5, KCL, Northwest Greeley, Kern	7-29-26	11,295	O.S. drlg.
Continental Oil, No. 2-D, KCL, Bellevue, Kern	14-30-26	14,051	P.B. 11,802
Shell Oil, No. 21-28-B, KCL, Ten Section, Kern	28-30-26	8,220	flow 3,032 b.d.
Shell Oil, No. 32-28-B, KCL, Ten Section, Kern	28-30-26	3,788	sd. sh. drlg.
Shell Oil, No. 61-25-A, KCL, Ten Section, Kern	25-30-25	4,594	sd. sh. drlg.
Tide Water A. O., No. 5-7-E, KCL, Strand, Kern	7-30-26	6,791	sd. sh. drlg.
Shell-Ohio, No. 64-12-A, KCL, Strand, Kern	12-30-25	8,080	sd. sh. drlg.
Ohio Oil, No. 16-E, Canal, Kern	13-30-25	4,787	sd. sh. drlg.
Shell Oil, No. 6-14-A, KCL, Canal, Kern	14-30-25	8,618	P.B. 8,250
Richfield Oil, No. 12-33-A, KCL, Tupman, Kern	33-30-25	9,331	redrlg. 9,040
Richfield Oil, No. 41-32-A, KCL, Tupman, Kern	32-30-25	8,270	sd. sh. drlg.
Richfield Oil, No. 67-4-B, KCL, Cole's Levee, Kern	4-31-25	9,460	sd. sh. drlg.
Richfield Oil, No. 76-4-B, KCL, Cole's Levee, Kern	4-31-25	9,061	sd. sh. drlg.
Standard Oil, No. 20-2, KCL, Cole's Levee, Kern	9-31-25	8,660	redrlg. 8,332
Standard Oil, No. 20-3, KCL, Cole's Levee, Kern	9-31-25	8,892	O.S. drlg.
Standard Oil, No. 20-4, KCL, Cole's Levee, Kern	9-31-25	9,691	hd. sh. drlg.
Ohio Oil, No. 4-F, KCL, Cole's Levee, Kern	11-31-25	9,800	flow 1,166 b.d.
Ohio Oil, No. 5-F, KCL, Cole's Levee, Kern	10-31-25	9,271	sd. sh. drlg.
Tide Water A. O., No. 81, KCL, Cole's Levee, Kern	14-31-25	10,636	sd. sh. drlg.
Tide Water A. O., No. 65, KCL, Cole's Levee, Kern	13-31-25	6,476	sd. sh. drlg.
Union Oil, No. 56-11, KCL, Cole's Levee, Kern	11-31-25	6,084	sd. sh. drlg.
Quality Oil, No. 4 Cypress, Midway-Sunset, Kern	22-32-23	1,047	sd. sh. drlg.
Quality Oil, No. 6 W.P., Midway-Sunset, Kern	27-32-23	1,975	cleaning out
Merritt-Annex Oil, No. 8 Fried, Midway-Sunset, Kern	25-12-24	2,494	pump water
General Pet., No. 1 B.V.A., Midway-Sunset, Kern	1-32-24	10,630	hd. sh. drlg.
Signal Oil & Gas, No. 6 Kendon, Midway-Sunset, Kern	35-32-23	1,869	sd. sh. drlg.
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	9,890	cleaning out
National Oil, No. 34 Sunset, Midway-Sunset, Kern	35-32-23	1,791	sd. sh. drlg.
Oxford Oil, No. 6 Sunset, Midway-Sunset, Kern	27-31-22	1,720	pump 170 b.d.
Mitchell, E. H., No. 13 Sunset, Midway-Sunset, Kern	15-31-22	606	sd. sh. drlg.
Texas Co., No. 36 M. S., Midway-Sunset, Kern	32-32-24	1,494	sd. sh. drlg.
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	7,394	sd. sh. drlg.
Western Gulf, No. 74-3-A, KCL, Paloma, Kern	3-32-26	9,192	sd. sh. drlg.
Richfield Oil, No. 81-36 B.V.A., Buena Vista L., Kern	36-31-25	10,418	sd. sh. drlg.
Shell Oil, No. 37-25-A Pleito, Wheeler Ridge, Kern	25-11-21	4,187	dry; abd.
Continental Oil, No. 1-F, KCL, San Emidio, Kern	5-10-21	9,227	will deepen
Shell Oil, No. 52-2-13-A, KCL, San Emidio, Kern	13-11-22	12,020	hd. sh. drlg.
Burt & Taylor, No. 1 Rankin, McKittrick, Kern	30-30-22	1,048	sd. sh. drlg.
Fairfield, F. E., No. 1 Williams, McKittrick, Kern	2-30-21	1,529	sd. sh. drlg.
Fairfield, F. E., No. 1 Ninkovich, McKittrick, Kern	4-30-21	498	sd. sh. drlg.
Standard Oil, No. 51-19-B fee, NE Coalinga, Fresno	19-19-16	7,240	sd. sh. drlg.
Union Oil, No. 57-18-Cook, NE Coalinga, Fresno	18-19-16	7,764	sd. sh. drlg.
Union Oil, No. 75-18-Cook, NE Coalinga, Fresno	18-19-16	5,988	sd. sh. drlg.
Amerada Pet., No. 3-17 S.P.L., NE Coalinga, Fresno	17-19-16	8,050	sd. sh. drlg.
Bandini Pet., No. 46-18-B, NE Coalinga, Fresno	18-19-16	4,274	sd. sh. drlg.
Superior Oil, No. 1 Husong, NE Coalinga, Fresno	18-19-16	8,214	O.S. drlg.
Wilshire Annex Oil, No. 64-30-B, C. Coalinga, Fresno	30-19-16	8,383	wet; abd.
Lytle, R. S., Agent, No. 53-7-F, SE Coalinga, Fresno	7-20-16	7,713	O.S. drlg.
Lytle, R. S., Agent, No. 26-18-F, SE Coalinga, Fresno	18-20-16	6,697	sd. sh. drlg.
Lytle, R. S., Agent, No. 42-18-F, SE Coalinga, Fresno	18-20-16	2,363	sd. sh. drlg.
Univ. Cons'd. Oil, No. 81-24-C, SE Coalinga, Fresno	24-20-15	6,861	sd. sh. drlg.
Texas Co., No. 4 Exeter fee, SE Coalinga, Fresno	6-20-16	3,286	sd. sh. drlg.
Texas Co., No. 1 Anderson, SE Coalinga, Fresno	6-20-16	6,692	sd. sh. drlg.
Standard Oil, No. 62-13-C fee, SE Coalinga, Fresno	13-20-15	7,290	sd. sh. drlg.
Standard Oil, No. 66-13-C fee, SE Coalinga, Fresno	13-20-15	5,971	sd. sh. drlg.
Standard Oil, No. 75-13-C fee, SE Coalinga, Fresno	13-20-15	6,784	sd. sh. drlg.
Standard Oil, No. 31-19-F fee, SE Coalinga, Fresno	19-20-16	6,740	sd. sh. drlg.
Superior Oil, No. 1-B Cagle, SE Coalinga, Fresno	6-20-16	6,733	sd. sh. drlg.
Superior Oil, No. 4 Huffman, Kettleman N, Fresno	29-21-17	9,830	sd. sh. drlg.
K. N. D. A., No. 25-22-Q, Kettleman North, Kings	22-22-18	7,980	flow 3,123 b.d.
K. N. D. A., No. 38-22-Q, Kettleman North, Kings	22-22-18	7,940	sd. sh. drlg.
K. N. D. A., No. 56-22-Q, Kettleman North, Kings	22-22-18	7,810	sd. sh. drlg.
K. N. D. A., No. 36-26-Q, Kettleman North, Kings	26-22-18	6,984	sd. sh. drlg.
K. N. D. A., No. 47-26-Q, Kettleman North, Kings	26-22-18	7,236	sd. sh. drlg.
K. N. D. A., No. 41-28-Q, Kettleman North, Kings	28-22-18	7,605	sd. sh. drlg.
Standard Oil, No. 27-19-J, Kettleman North, Fresno	19-21-17	10,290	gr. sh. drlg.
Standard Oil, No. 72-19-J, Kettleman North, Fresno	19-21-17	10,284	sd. sh. drlg.
Standard Oil, No. 27-7-Q, Kettleman North, Kings	7-22-18	9,520	sd. sh. drlg.
Standard Oil, No. 43-7-Q, Kettleman North, Kings	7-22-18	8,568	flow 300 b.d.
Standard Oil, No. 54-7-Q, Kettleman North, Kings	7-22-18	6,590	sd. sh. drlg.
Standard Oil, No. 63-7-Q, Kettleman North, Kings	7-22-18	6,992	sd. sh. drlg.
Standard Oil, No. 32-17-Q, Kettleman North, Kings	17-22-18	6,830	hd. sh. drlg.
Standard Oil, No. 61-17-Q, Kettleman North, Kings	17-22-18	5,084	sd. sh. drlg.
Standard Oil, No. 72-17-Q, Kettleman North, Kings	17-22-18	6,074	redrlg. 5,760
Standard Oil, No. 76-17-Q, Kettleman North, Kings	17-22-18	5,491	sd. sh. drlg.
Standard Oil, No. 83-17-Q, Kettleman North, Kings	17-22-18	5,983	br. sh. drlg.
Standard Oil, No. 52-21-Q, Kettleman North, Kings	21-22-18	6,571	br. sh. drlg.
Standard Oil, No. 74-21-Q, Kettleman North, Kings	21-22-18	6,260	br. sh. drlg.
Standard Oil, No. 32-27-Q, Kettleman North, Kings	27-22-18	7,800	sd. sh. drlg.
Standard Oil, No. 63-35-Q, Kettleman North, Kings	35-22-18	5,160	sd. sh. drlg.
Compass Oil, No. 1 Points, Deer Creek, Tulare	8-23-26	3,745	gr. sd. drlg.
Priest Valley Pet., No. 1 Grove, Priest Val., Monterey	22-20-12	1,402	gr. sd. drlg.
Buttes Oilfields, No. 6 Buttes, Marysville, Sutter	1-15- 1	6,090	sd. sh. drlg.
Seaboard Oil, No. 1 Howard, Bear Creek, Merced	6- 8-11	6,196	sd. sh. drlg.
Texas Co., No. 1 Welch, Rio Vista Gas Field, Sacram.	5- 3- 3	4,230	sd. sh. drlg.

OKLAHOMA

Week Ended November 25

NORTHERN OKLAHOMA

Caddo County

Sinclair Prairie Oil Co. No. 1 Gorman. SW NW NW Sec. 1-16-13w. S. heavy oil; cd. 6,442-49 ft.; Wdfrd. 6,600 ft.; Hntn. 7,157 ft.; cd. 7,439-44 ft.; rec. S.O.; drlg. 7,907 ft.

Cleveland County

Neis Burton No. 1 Bogga, NE NE SE Sec. 16-9-2w. 2nd Wlx. 7,585 ft.; T.D. 7,646 ft.; P.B. 7,473 ft.; shot and acd.; P. 113 B.O.P.D.; 20 to 50% wtr.

Sinclair-Prairie No. 1 Ward, SE SE SE Sec. 30-7-1. Hntn. 6,185 ft.; Vla. 6,408 ft.; open 30 min. at 6,800 ft., rec. S. W.; P.B. to 6,782 ft.; swb. 106 B.O. in 24 hrs.; hvy. blk. oil; drlg. 7,975 ft. in Arb.; N.S.

J. F. Smith's No. 1 Corbett, C SW NE Sec. 20-6-1. (O.W.D.D.); O.T.D. 6,700 ft.; 6-in. 6,320 ft.

Canadian County

W. R. Ramsey's No. 1 Mansfield, C NW NE Sec. 16-14-9w. Lytn. 6,800-6,920 ft.; sd. 9,191 ft., S.S.G.; T.D. 9,519 ft.; to run Schlm.

Comanche County

Mid Night Oil No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; fag. 998 ft.

Creek County

Sunray Oil Co. No. 1 Harris, SW SW NE Sec. 30-14-7. T.D. 2,927 ft.; est. 370,000 cu. ft. gas.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes, C SW SW Sec. 31-18-14w. Drlg. 2,000 ft.

Garvin County

Duckworth & Jennings' No. 1 Bowie, NW NE SE Sec. 3-4-3. W.O.C. 60 ft.

Robinson & Midco's No. 1 Clay, SW SW NW Sec. 21-4-3. Simp. dense 3,145 ft.; cd. 3,277-94 ft.; rec. 13 ft. sdy. dolo.; T.D. 3,503 ft.; S.D.

Grady County

Alma Oil Co.'s No. 5 Pettit (O.W.D.D., SE SE SE Sec. 11-4-8w. T.D. 3,660 ft.; P. 60 B.O. in 24 hrs.; S.D., tanks.

John Graham's No. 1-A Thomas, NW SW NE Sec. 19-5-7w. Drlg. 2,720 ft.

Grant County

Magnolia Pet. Co.'s No. 1 Margay-Johnson, SW SW NE Sec. 29-25-8w. Drlg. 6,155 ft.

Hughes County

Senora O. & G. Co.'s No. 1 Warren, NW NW SE Sec. 35-6-8. Drlg. 1,995 ft.

Jackson County

English Drlg. Co.'s No. 1-A Aetna Life, SE SE NE Sec. 26-3-20w. U.R. 8-in., T.D. 1,370 ft.

Bob Helton et al's No. 1 Lee, NE SE NW Sec. 36-2-19w. T.D. 1,360 ft.; abd.

Jefferson County

H. M. Weir No. 1 Carmichael, NE NE SW Sec. 23-7s-7w. Drlg. 3,525 ft.

Kay County

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. Drlg. 1,500 ft.

Zephyr Drlg. Co.'s No. 1 High, NE NW NW Sec. 24-26-2w. Drlg. 2,500 ft.

Kingfisher County

Anderson-Prichard No. 1 Geis, C NE SW Sec. 15-18-9w. Lytn. 6,450-6,510 ft.; T.D. 8,507 ft.; P.B. 7,365 ft.; B. to bttm.; tstg.

Ace Gutowsky No. 1 Lankford, NE NE SE Sec. 34-17-6w. Miss. 7,014 ft.; Woodford 7,531 ft.; Msnr. 7,562 ft.; Wlx. 8,-105 ft.; 2nd Wlx. 8,275 ft.; T.D. 8,330 ft.; S.D.O.

Kiowa County

Bollen-Dillard & Roberts No. 1 Holcomb, NE NE SW Sec. 25-7-19w. Drlg. 1,470 ft.

Frank Dillard et al's No. 1 Hobbs, SE SE NW Sec. 35-6-17w. Gr. wsh. 555 ft.; drlg. 593 ft.

Hagerling et al No. 1 Bozeman, SE SE NE Sec. 14-5-18w. Drlg. 1,286 ft.

C. J. Hagerling No. 1 Kimray, SW SW NW Sec. 36-5-18w. T.D. 1,592 ft.; S.D.

Lincoln County

Black Gold No. 1 Locquchment, NE NE NE Sec. 28-14-6. T.D. 3,175 ft.; est. 5 B.O.P.D.; S.D.

Noble County

Franks & Ellis' No. 1 Stranka, SW SW NW Sec. 35-24-1w. S.D. 1,400 ft.

Osage County

Midco Oil Co.'s No. 1 Osage, NE NE SW Sec. 17-22-8. S.D. 2,847 ft.

Payne County

Helmerich & Payne's No. 1 Berry, Sec. 14-17-6. T.D. 4,870 ft. in Wlx.; F. 220 B.O. in 12 hrs.

C. R. Hoagland No. 1 Stanolind, SE SE SW Sec. 27-18-4. Miss. 3,800 ft.; T.D. 3,905 ft.; D.P. stk.

Pontotoc County

Crescent Oil Co.'s No. 2 Thompson, NE NW SW Sec. 29-3-4. Drlg. 216 ft.

Pottawatomie County

Neustadt et al No. 1 Howeth, NE SE NE Sec. 14-6-4. Sd. and S.S.O. 3,455-60 ft.; S.D. 5,060 ft.

Sequoyah County

Thompson Bros. No. 1 Ruby, NW NW NE Sec. 30-12-22. Hntn. 1,451 ft.; T.D. 1,912 ft. (cor.); S.D.

Washita County

Continental Oil Co. No. 1 Proctor, C NW Sec. 28-10-20w. T.D. 14,582 ft.; perf. csg. 13,360-70 ft.; to P.B. and test G.S.

SOUTHERN OKLAHOMA

Carter County

W. F. Turner's No. 1 Smith, NE SW SE Sec. 16-3s-1w. Drlg. 1,670 ft.

Choctaw County

Letchfield & Kirksiy No. 1 Schuester, SW SE SW Sec. 13-6s-14. Cd. 1,169-81 ft., L.&sd.; S.S.O.; H.F.W.; T.D. 1,184 ft.; tools moved out.

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. Drlg. 1,720 ft.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-6s-6w. Sd. 1,852 ft., S.O.; D. P. stk. at 1,100 ft.; T.D. 1,890 ft.

Marshall County

Hughes et al No. 1 Vittitto, C NE SE Sec. 11-5s-4e. O.W.D.D.; O.T.D. 7,100 ft.; T.D. 7,110 ft.; S.D.

Johnson et al No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Vla. 2,627 ft; S.S.O.; drlg. 3,827 ft.

Stephens County

Ray Johnson's No. 1 Baker, C SE NW Sec. 35-2s-6w. Sd. 1,897-1,912 ft.; T.D.; to test.

Tillman County

Magnolia Pet. Co.'s No. 1 Amyx, NW SE SE Sec. 17-3-16w. Drlg. 4,187 ft.

KANSAS

Week Ended November 25 (Descriptions are East unless marked otherwise)

Barbour County

Patton Drlg. Co.'s No. 1 Hoss, C W½ NW SW Sec. 12-30-15w. W.O.C. 1,110 ft.

Barton County

C. E. Ash et al's No. 1 Montgomery, NW NW NW Sec. 11-16-11w. Drlg. 2,760 ft.

B. B. & M. Drlg. Co.'s No. 1 Krier, CEL SE SE Sec. 30-16-11w. Pay 3,327 ft.; P. 120 B.O. in 8 hrs.; to retest.

Crown Pet. Co. No. 1 Marchand, NE SE NW Sec. 13-20-11w. Drlg. 2,910 ft.

Sam Schneider's No. 1 Steckel, C W½ SW NE Sec. 11-20-12w. Drlg. 1,750 ft.

Butler County

Allison & Talbott's No. 1 Zink, SE SE NE Sec. 32-29-5. S.O. 2,140 ft.; fsg. 2,-710 ft.

Carey & Jennings No. 1 Kelly, C SW Sec. 20-27-4. S.D. 2,660 ft.

Cromwell & Lewis No. 1 Stern, NW NW NW Sec. 27-27-6e. M.I.M.

C. H. Pechin et al's No. 1 Hartenbower (O.W.D.D.), NW NW NW Sec. 16-29-6. O.T.D. 3,257 ft.; Peru sd. 2,476-2,530 ft.; C.O. 1,200 ft.

Colley County

Hollett's No. 1 Butler, SE SW SE Sec. 28-20-15. T.D. 2,202 ft.; S.D.O.

Cowley County

Garden's No. 1 Rahn, SW SW NW Sec. 13-34-5. Bart. 2,936 ft.; S. 2 B.O.P.H.; S.D.O.

E. B. Shawyer's No. 1 Henderson, C W½ NE NE Sec. 4-33-6. Base Miss. 3,-536 ft.; Arb. 3,599-3,613 ft., T.D.; est. 5 B.O.P.D.

Earl Wakefield's No. 1 Steel, C E½ SW SE Sec. 6-32-6. T.D. 1,745 ft.; U.R. 10-in.

Douglas County

Greenway Oil Co.'s No. 1 Grosdedier, C E½ SE NE Sec. 24-13-20. Drlg. 740 ft.

Ellis County

Virginia Drlg. et al's No. 1 Craig, CEL SE SE Sec. 8-11-16w. Drlg. 2,765 ft.

Greenwood County

Chas. Barker's No. 1 Gregg, SW NW SE Sec. 35-25-12. (O.W.D.D.). O.T.D. 1,-660 ft.; drlg. 1,955 ft.

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.

Marylyn Oil Co.'s No. 1 Burke, NE NE SW Sec. 27-24-11. S.D. 50 ft.

Jefferson County

E. W. Mosbacker et al's No. 1 McLaughlin, SW NE NW Sec. 4-10-20. Bart. 1,-422-26 ft.; at 1,430 ft. est. 6,000,000 cu. ft. gas; T.D. 1,459 ft.; loaded hole with wtr.

Kingman County

Skelly Oil Co. No. 1 Miller, CSL N½ NE Sec. 31-27-10w. Set 7-in. 4,067 ft.; R.U. S.T.

McPherson County

Fain Drlg. Co.'s No. 1 Briggs, CWL SW SW Sec. 21-20-5w. Drlg. 1,479 ft.

Sunray Oil Co.'s No. 1 Anderson, CWL SW NW Sec. 17-20-5w. Drlg. 2,320 ft.

Marion County

Polhamus et al's No. 1 Noone, NW NW SE Sec. 18-18-3. Drlg. 1,350 ft.

Montgomery County

Lerke & Whortan No. 1 Clemmer, C SW SW Sec. 21-32-15. Arb. 1,530 ft.; set 5 in. csg.; W.O.C.

Pratt County

Skelly Oil Co.'s No. 1 Royse, C SW Sec. 9-28-11w. Lans. 3,604 ft.; Vla. 4,246-49 ft.; T.D. 4,268 ft.; S.S.O.; 802,000 cu. ft. gas.

Rice County

H. B. Garden et al's No. 1 Misener, C N½ NW NE Sec. 21-21-7w. Drlg. 3,245 ft.

Saco Oil's No. 1 Habeger, SE SE SW Sec. 12-18-10w. Tpk. 2,494 ft.; Lans. 2,905 ft.; fsg. 2,960 ft.

Stanolind O. & G. Co.'s No. 1 Bredfeldt, CSL SW NE Sec. 2-19-10w. W.O.C. 225 ft.

Vickers Pet. Co. No. 1-A Rodenberg, CNL NW¼ Sec. 8-18-10w. Lans. 2,930 ft.; Arb. 3,265-81 ft., T.D. N.S.

Rooks County

Broadview Oil No. 1 Baxter, NE SW SW Sec. 35-8-16w. Lans. 3,180 ft.; S.S.O.; T.D. 3,263 ft.; P. 89 B.O. in 7 hrs.; pot. 269 B.O.P.D.

Russell County

Ray Shaffer et al's No. 1 Shaffer, NE NE SW Sec. 9-13-11w. S.D. 1,315 ft.

Stafford County

Continental Oil Co. No. 1 Keller, SE SE SE Sec. 15-24-13w. S.O. 3,733-43 ft., cd. 4,111-16 ft. and rec. 5 ft. sat.; T.D 4,116 ft.; 3,900 ft. O.I.H.

Seaney & Clampitt's No. 1 Brown, SW SW SE Sec. 1-21-13w. W.O.C. 245 ft.

Woodson County

Bird, Hanley & Sheedy No. 1 Pingrey, C S½ SE Sec. 22-25-15. Spd.

MISSOURI

Adair County

J. W. Eddington et al's No. 1 Clark, NW NE SE Sec. 8-63-14w. T.D. 200 ft.; hole caved; skd. rig 40 ft.; spdg.

Ward McGinnis' No. 1 Laughlin, SE SE SW Sec. 16-53-34w. S.D. in Arb.

Morrow & Rodgers and Benedum-Trees' No. 1 Cooley, SE SE NW Sec. 33-64-17w. St. Peter 1,375 ft.; Arb. 1,476-1,526 ft.; no shows; S.D.O.

Andrew County

E. F. Neely et al's No. 1 Shores, SE SE SE Sec. 12-60-37w. St. Peter 2,721 ft.; Arb. 2,744-80 ft., T.D.; D.&A.

Bollinger County

Deimund Oil No. 1 Cooper, SE SE SE Sec. 14-29-9e. T.D. 1,850 ft.; S.D.

Buchanan County

Miller et al's No. 1 Carrough, C SE SE Sec. 24-57-35w. Cherokee sh. 706 ft.; rng. 12½-in. at 830 ft.

Butler County

Coastal Pet. et al No. 1 Pierson, SW NE NW Sec. 27-22-6e. Reported drlg. below 500 ft.

Charlton County

L. E. Mummert et al's No. 1 Rickert, NW NE SE Sec. 26-54-20w. Loc.

Clay County

Pabelo Dev. Co.'s No. 5-A Robb, NW NW SE Sec. 36-52-32. T.D. 600 ft., S.G.; S.D.O.

Daviess County

H. H. Francis' No. 1 Louis, SW NW SW Sec. 29-59-27w. S.D. 760 ft.

Clinton County

C. E. King et al's No. 1 Vanderau, SE NE SW Sec. 18-55-31w. T.D. 1,835 ft.; S.D.O.

DeKalb County

E. H. Lawhon et al's No. 1 Gottschall, C SE SE Sec. 18-59n-32w. Loc.

Geo. W. Moore No. 1 McQuate, NE SW SW Sec. 11-57n-31w. Miss. 1,075 ft.; S.D. csg. 1,500 ft.

Holt County

Brin & Nathan No. 1 Decker, C NW NW Sec. 1-61-38w. T.D. 1,030 ft.; S.D. for csg.

Jackson County

Hulse & Christopher's No. 1 Wiston, NE NW SE Sec. 22-49-32w. T.D. 510 ft.; shot in sd.; no incr.; may dpn.

Knox County

W. H. Oberithier et al's No. 1 Campbell, C NE Sec. 18-61-12w. M.I.M.

Mercer County

Geo. W. Moore No. 1 Moss, NW SW SE Sec. 30-65-24w. Hntn. 1,273 ft.; T.D. 1,879 ft.; fsg.

Platte County

Missouri Valley G. & O. Co.'s No. 1 Jacks, SE cor. Sec. 7-51-33w. Drlg. 165 ft.

Geo. A. Vincent et al's No. 1 Dillingham, NE SW Sec. 16-53-34w. Pits; M.I.M.

Randolph County

A. A. Ash et al's No. 1 Alexander, C SE Sec. 14-55-13w. Loc.

Ray County

Loomis-Jordan No. 1 Macey, NE SW NW Sec. 10-53-27w. S.O. 330 ft., T.D.; set csg.

Schuyler County

T. E. Baldwin's No. 1-A Johnson, NW NE NE Sec. 21-65-15w. T.D. 725 ft.; waiting on pipe.

Rogers & Morrow's No. 1 Seamster, C N½ SW SE Sec. 6-64-13w. Drlg. 625 ft.

IOWA

Fremont County

Oscar Gruber's No. 1 fee, C SW SE Sec. 8-67n-40w. Base Ft. Scott 750 ft.; T.D. 1,065 ft.; S.D. for csg.

Guthrie County

F. E. Hunt et al's No. 1 McConnell, C SE SE Sec. 11-78n-30w. Drlg. 400 ft.

Union County

Phillips Pet. Co.'s No. 1 Creston, C SE NE Sec. 31-71-30w. Rig.

NEBRASKA

Cass County

Golden Rod Oil Co. No. 1 Sparer, SE SE SE Sec. 8-11-13e. S.D. 1,205 ft. in Vla. L.

Dakota County

Peder Skriver's No. 1 Armour, NE NE NE Sec. 33-28-8. O.T.D. 2,964 ft.; S.D.

Dawes County

G. E. Mitchell's No. 1 Palmer, NW NW SW Sec. 1-33-50w. (O.W.D.D.); O.T.D. 2,964 ft.; R.U. to D.D.

Fillmore County

Dan Kornfeld's No. 1 Mathis, NE NE NE Sec. 22-5-1w. T.D. 1,300 ft.; U.R.

Keith County

California-Nebraska Oil, Ltd.'s No. 1 Guststuehm, NW NW NW Sec. 21-14-37w. Dak. 2,772 ft.; S.O. 2,895-2,901 ft.; S.D. 3,200 ft.

Richardson County

Pawnee Royalty's No. 1 Boice, CSL N½ NE NE Sec. 18-1-16e. Hntn. 2,276 ft.; pmp. 230 B.O. in 24 hrs.; pmp. 122 B. O. 2nd 24 hrs.; T.D. 2,285 ft.; starting 60-day test.

Pawnee Royalty's No. 1 Myers, C NW NW Sec. 24-1-1s. Spd.

Stephens & Uhrl's No. 1 Stauffer, SW SW NE Sec. 21-1n-13e. Spd.

Scotts Bluff County

Albert Wood et al's No. 1 McHenry, SE NE NE Sec. 33-23-57w. T.D. 625 ft.; S.D.

J. A. Fairy Pet.'s No. 1 McCulley, C SE SE Sec. 35-23-58w. S.D. 2,035 ft.

ARKANSAS

Clark County

W. S. King's No. 1 H. Ross, 640 ft. S. 359 ft. W, NE cor. S½ SW Sec. 3-10-21. Drlg. red sh. 1,920 ft.

W. P. Wilson's No. 1 Hamilton & Mathews, C W½ NE NE Sec. 31-10s-20w. Run 10-in. csg. 41 ft.; T. Nac. 358 ft.; S.S.O.; reported S.O.&G. 437 ft.; S.D. 1,650 ft., high wtr.

Columbia County

Ark. Fuel Oil Co.'s No. 1-B King, 1,980 ft. S and E, NW cor. Sec. 21-17-20. Set 9⅝-in. csg. 2,128 ft. Cg. 7,617 ft.

Atlantic Ref. Co.'s No. 1-B Pine Woods Lbr. Co., C SE NW Sec. 16-18-22. Drlg. red and gr. sh. 5,500 ft.

Gulf Ref. Co.'s No. 1 Lewis, C SW NE Sec. 12-18-23. M.I.M.

Hunt Oil Co.'s No. 1 McWilliams, C NW NW Sec. 15-18-19. Drlg. gr. sh. 5,919 ft.

Lion Oil Ref. Co.'s No. 1 Warnock est., C NW NW Sec. 15-18-22. Drlg. gr. sh. 7,618 ft.

J. K. Mahoney's No. 1 E. Riley, C NW NE Sec. 14-18-19. Drlg. sh. 5,956 ft.

Shell Oil Co., Inc.'s No. 1 Keith, C SE SE Sec. 9-18-22. 9⅝-in. csg. 2,265 ft.; drlg. sh. 5,600 ft.

Shell Oil Co.'s No. 1 Lewis, C NE NE Sec. 19-17-19. Set 13⅜-in. csg. 120 ft.; drlg. 2,197 ft.

Standard Oil Co.'s No. 4 Crone, C SW SE Sec. 8-16-22. Set 13⅜-in. csg. 195 ft.; T.D. 222 ft.; W.O.C.

Standard Oil Co. of La.'s No. 1-B N. Johnson, 655 ft. W, 660 ft. N, SE cor. SE SE Sec. 9-16-22. Drlg. sh.&L. 4,679 ft.

Standard Oil Co. of La.'s No. 1-B Lewis, 660 ft. N, 560 ft. E, SW cor. SW NE Sec. 19-17-19. Cg. L. 7,554 ft.

Standard Oil Co. of La.'s No. 1-A Longino Unit, C NE SW Sec. 19-17-19. Set 9⅝-in. csg. 2,149 ft.; set 6-in. csg. 7,576 ft.; W.O.C.

Standard Oil Co.'s No. 1-B W.B. Merritt et al unit, 560 ft. N, 660 ft. E SW cor. NE SE Sec. 16-17-20. 9⅝-in. csg. 2,147 ft.; W.O.C.

Standard Oil Co. of La.'s No. 1 Petty Stave, C SE SE Sec. 4-17-21. Drlg 7,742 ft.

Standard Oil Co. of La.'s No. 1 R. S. Warnock, C NW NW Sec. 36-16-20. T. Buckner 7,388 ft.; drlg. L.&anhy. 7,453 ft.

Superior Oil Co.'s No. 1 Martel, C SW SW Sec. 10-18-22. Drlg. 4,040 ft.

Tide Water Seaboard's No. 1 Clark, C SE NE Sec. 16-18-19. Set 10¾-in. csg. 2,514 ft.; T. L. 8,217 ft.; T. Por. 8,227 ft.; T.D. 8,256 ft.

G. H. Vaughn's No. 1 Jameson, C S½ S½ NE Sec. 15-17-20. Drlg. 2,800 ft.

Craighead County

Tennark, Inc., No. 1 R. M. Martin, SE cor. NE NE Sec. 35-14-3e. S.D. 4,148 ft.

Lafayette County

East Texas Ref. Co. et al's No. 1-C C. Warren et al, C NE SE NW Sec. 24-16-24. S.D. 10 ft.; drlg. 2,209 ft.

Lonoke County

Cabot Drlg. Club's No. 1 LeMay, 330 ft. SE cor. SE SW Sec. 26-4n-9w. S.D. 20 ft.

Miller County

W. C. Feazel's No. 1 Heflin, 455 ft. N, 350 ft. E. SW cor. frac. Sec. 17-20-27. Drlg. sh.&L. 4,610 ft.

Nevada County

O. T. Clark's No. 1 T. M. Bemis, 330 ft. NW cor. NW NE Sec. 23-10s-22. M. I.M.

Ouachita County

Liberty Oil Co.'s No. 1 P. T. Hildebrand, 660 ft. S, 330 ft. W NE cor., SE Sec. 28-15-15, O.W.W.O., O.T.D. 4,934 ft. Perf. 2,780-84 ft.; small S.G.; hole full S.W.; W.O.

Sherry O'Brien's No. 2 Cooke est., 330 ft. SE cor. NW SW Sec. 27-15-18. R.U.

Pulaski County

Coker Oil Corp.'s No. 1 Huffman, 330 ft. NW cor. NW SW SW Sec. 29-4n-11w. 8⅝-in. csg. 206 ft.; S.D. 1,763 ft.

Sevier County

R. A. McArthur's No. 1 Bell est., 20 ft. SE cor. SE SW Sec. 29-9s-32w. Set 12½-in. csg. 100 ft.; S.D. 390 ft.

Union County—Schuler

Lion Oil Ref. Co.'s No. 7-B Morgan, 330 ft. NW cor. W½ SE Sec. 18-18-17. T. Jones sd. 7,546 ft.; T.D. 7,730 ft.; fsg. D.S.

Union County—Other

Frank Anthony's No. 1 Jerry, Sec. 21-17-14. Drlg. 1,240 ft.

Barnsdall Oil Co.'s No. 1 Cameron, C SW SW Sec. 36-19-17. Set 13⅜-in. csg. 239 ft. (cor.); set 10¾-in. csg. 2,430 ft.; W.O.C.

E. G. Bradham's No. 4-A H. C. McKinney, 306 ft. N, 660 ft. E, SW cor. SW SW Sec. 30-17-15. Hole 120° off; P.B. 2,150 ft.; hole 11° off; abd. and skd. 20 ft. N; set 10-in. csg. 100 ft.; T.D. 2,167 ft.; set 7-in. csg. 2,167 ft.; R.U. C.T.

Delta Drlg. Co. et al's No. 1 J. E. Bull, 330 ft. SE cor. SW NW Sec. 6-18-13. Tstd. oil and S.W. in Meakin sd. and oil and mud in Graves sd.; tstg. sat. sd. in Blsm.; tstd. S.W. 2,710-18 ft., set 7-in. csg. 2,730 ft.; perf. 2,583-86 ft.; T.D. 2,730 ft.; swbd. est. 450 B.F., 10% oil; 1,500 ft. O.I.H.; W.O.S.R.

Delta Drlg. Co.'s No. 1 C. T. Grace, C SE SE Sec. 31-12-14. Set 10¾-in. csg. 815 ft.; T. Sur. L. 6,701 ft.; T. por. 6,708 ft.; S.W. 6,712 ft.; tstd. mud, S.W.&S.O. 6,701-27 ft.; T.D. 6,819 ft.; W.O.

Edgar Johnston's No. 1 R. B. Axums, 330 ft. SW cor. SE SW Sec. 31-17-13. Drlg. 1,205 ft.

Lion Oil Ref. Co. No. 9-A Hays, Sec. 4 16-15. O.W.W.O.; O.T.D. 7,255 ft.; P.B 2,325 ft.; rpd. csg. 2,276-80 ft.; S.O.; pmpd. est. 700 B.P.D. S.W.; S.S.O.; arng. recmt. 2,325 ft.; W.O.C.

D. A. Mason, Tr.'s No. 1 Ramsey est., 330 ft. NE cor., SE NW Sec. 26-17-14. R.U.

Oil Prod., Inc.'s No. 1 Moore, C SE SE Sec. 1-17s-14w. T. Crain sd. 3,043 ft.; S.D. 3,066 ft.; W.O.

ALABAMA

Choctaw County

Joe Modisett et al's No. 1 McCorvey, SE cor., SW SW Sec. 20-9n-2w. S.D. 7,520 ft.

Houston County

Columbia Oil Co.'s No. 1 State Ld., SE cor. NE NE Sec. 8-2n-29e. S.D. 2,150 ft.; Selma clk.

Lawrence County

Mid-Southern Pet. Co.'s No. 1 W. R. Jackson, 150 ft. NL, 500 ft. EL, Sec. 30-7-6. S.D. 570 ft., hd. L.

Washington County

Texon Drlg. Co.'s No. 1 Stallworth Naval Stores, Sec. 25-5n-4w. T.D. chalk 5,502 ft.; D.&A.

FLORIDA

Baker County

Swift Creek Oil Co.'s No. 1 Howell Turpentine Co., approx. C Sec. 15-4s-19e. Drlg.

Dade County

Wm. G. Blanchard et al's No. 1 Everglades, 200 ft. E, 100 ft. N, SE cor. Sec. 31-53s-35e. R.U.

Levy County

Florida Oil Discovery Co.'s No. 2 Cedar Key, SW SW NE Sec. 9-15s-13e. T.D. 5,266 ft.; W.O. heavier rig.

Harkey & Houck's No. 1 Crapps, Sec. 15-14s-17e. Drlg. 910 ft.

Nassau County

St. Mary's River Oil Corp.'s No. 1 Hillard Turpentine Co., NW cor. NW SE Sec. 19-4n-24e. S.D. 4,755 ft. (cor.).

Suwannee County

Wm. G. Blanchard et al's No. 1 Lucy Cotton, 774 ft. N, 153 ft. W, SE cor. NE Sec. 35-3s-11e. S.D. 184 ft.

J. W. Phillips Oil Expltn. Co.'s No. 1 Shilkett, NW NW Sec. 14-4s-14e. S.D. 410 ft.; W.O.

GEORGIA

Clinch County

Georgia Resources, Inc.'s No. 1 Gillican, Dist. 4. T.D. 400 ft.; trying to lower csg. 250 ft.

Montgomery County

E. O. Moses' No. 3 Montgomery, SW R.R. station, Uvalda Sur. Drlg. sh. 750 ft.

MISSISSIPPI

Attala County

Kosciusko Oil Co.'s No. 1 Jones, 600 ft. NW cor. Sec. 5-15n-9e. Drlg.

P. & M. Oil Co.'s No. 1 J. A. McMillin, 300 ft. SW cor., SE SE Sec. 26-13n-5e. Loc.

Claiborne County

Claiborne Co. Dev. Co. No. 1 Ruth Hayden, S½ SE Sec. 55-11n-2e. O.W.WO.; O.T.D. 2,949 ft.; S.D. 3,272 ft., sh.

Copiah County

Triangle Drlg. Co.'s No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec. 1-10n-8e. T.D. 10 ft.; spd.; S.D.; water well comp.

Harrison County

Big Ridge Oil Co.'s No. 1 Hengin, C NE Sec. 13-7s-10w. S.D. 2,728 ft.

Hinds County

Byrd-Frost et al's No. 1 Gaddis Farms, 275 ft. SE cor. SE SE Sec. 12-6n-3w. T.D. 636 ft.; S.D. wtr.

Miss. Basin O. & G. Co.'s No. 1 Gaddis farms, 150 ft. E. 250 ft. S, NW cor. NW SW Sec. 17-7n-2w. T. Selma chalk 4,856 ft.; T.D. 6,145 ft.; R.U. new boilers.

Itawamba County

G. C. Grasty et al's No. 1 Ky. Lbr. Co., 1,320 ft. E. 660 ft. S, C Sec. 7-10s-10e. Twisted off D.S., skdd. 24 ft. S and spd.; set 10¾-in. csg. 170 ft.; drlg. sd., sh. & L. 916 ft.

Issaquena County

A. A. Chaney, Tr.'s No. 1 J. C. Mohanna, Sec. 13-18n-3e. R.U.

Locke & Mellard's No. 1 W. Gary, 660 ft. SE cor., NW Sec. 14-9n-6w. Loc.

Kemper County

M. R. Crabb et al's No. 1 W. T. Caldwell, NW SE Sec. 25-9n-15w. 10¾-in. csg. 86 ft.; cor. T.D. 1,420 ft.; S.D. repr. rig; T. chalk 1,390 ft.

Lamar County

Miss.-La. Oil Synd.'s No. 1 Simmons, 1,020 ft. N, 56 ft. W, SE cor. NE Sec. 32-3n-14w. T.D. 100 ft.; W.O.C.

South Miss. Pet. Corp.'s No. 1 Pearly Morris, 500 ft. S, 570 ft. E, C Sec. 4-2n-14w. S.D. 3,029 ft.

Munroe County

Willmut G. & O. Co.'s No. 1 Roberts, NW Sec. 18-13s-17w. Spdg.

Pike County

S. R. Crouch's No. 1 Cupit, 360 ft. N, 660 ft. W, SE cor. NE SW Sec. 25-2n-7e. S.D. 834 ft., cor. T.D.

Prentiss County

Home Dev. Co.'s No. 1 Mrs. A. Allen, Sec. 8-7s-9e. Drlg. dolo. 1,312 ft.

Simpson County

Cleve Love No. 1 N. E. Gardner, SW cor. SW NE Sec. 1-10n-17w. S.D. 3,150 ft., Wix.

Wilkinson County

Louisiana Progress Oil Co.'s No. 1 A. M. Young, 792 ft. N, 88° 30' W SE cor., Sec. 40-4n-1e. Set 10¾-in. csg. 1,200 ft.; T.D. 1,205 ft.; W.O.C.

Yazoo County

Conroe-Wilcox's No. 1 Stubblefield, Sec. 25-12-1w. Drlg. 1,027 ft.

Harry Hanbury et al's No. 1 Brooks, SW Sec. 17-10-2. M.I.M.

Edgar Johnson et al's No. 1 Broomfield, SE SE Sec. 2-10-3. R.U.

Jones & O'Brien Bros.' No. 1-B Stevens, C SW SW Sec. 12-10-3. Spd.
T. B. Slick's No. 1 W. S. Atkinson, 629 ft. S,. 556 ft. E, NW cor. NW NE SW Sec. 3-10n-3w. Drlg. below surf. csg. 110 ft.
Union Prod. Co.'s No. 2 G. C. Woodruff, 3,220.5 ft. S, 680.7 ft. E, NW cor. SE Sec. 13-10-3. T.D. 5,087 ft.; set 7-in. csg. 4,669 ft.; perf. 4,545-85 ft.; ran tbg.
Union Producing Co.'s No. 3 Woodruff, Sec. 18-10n-2w. R.U.
Yazoo Refinery, Inc.'s No. 1 Frank Brooks, W½ SE NW Sec. 17-10-2w. Set 16-in. csg. 118 ft.; drlg. 156 ft.

LOUISIANA

N. LOUISIANA WILDCATS

Bossier Parish

Cary & Gibson's No. 2-A Connell, 115 ft. S, 395 ft. W, NE cor. SE SE Sec. 15-10-11. Drlg. sh. 105 ft.
Gulf Ref. Co.'s No. 20 C. B. Hodges, 3,131 ft. N, 1,388 ft. W, SE cor. Sec. 24-16-12. T. Pett. L. 5,298 ft.; T. Travis Pk. 5,590 ft.; fsg. D.S. 7,574 ft.
Oils Finance Corp.'s No. 9 Ark. fee, 200 ft. N, 400 ft. W, SE cor. NE SE Sec. 15-19-11. R.U.; S.D.
Premier Inv. Co.'s No. 7-B Kendrick, 150 ft. N, 1,980 ft. W, SE cor. Sec. 22-19-11. D.S.T. 1,029-42 ft.; S.O.&G.; set 9-in. csg. 1,770 ft.; T.D. 1,785 ft.; W.O.C.
Premier Inv. Co.'s No. 7-C Kendrick, 150 ft. N, 585 ft. E, SW cor. SE Sec. 22-19-11. T. sd. 329 ft.; set 10-in. csg. 307 ft.; tstg. 338 ft.
Triangle Drlg. Co.'s No. 6-A Herold et al, 332 ft. S, 2,335 ft. E, NW cor. Sec. 13-17-12. R.U.
Union Prod. Co.'s No. 1-A Herold, 1,326 ft. S, 1,322 ft. W, NE cor. Sec. 29-17-11. Drlg. 1,837 ft.

Caddo Parish

Burnham Drlg. Co.'s No. 2 Wilkinson, 1,650 ft. N, 990 ft. W, SE cor. Sec. 33-22-16. S.D. 2,000 ft.
S. H. Cassidy et al's No. 1 Morgan, 1,800 ft. N, 455 ft. W, SE cor. Sec. 2-20-16. R.U.
L. I. Davis' No. 1 Williams, C NW NW Sec. 14-15-15. R.U.; S.D.
T. B. Donnell's No. 1 Surrey Oil Co., 2,970 ft. S, 2,475 ft. W, NE cor. Sec. 12-20-16. Set 7-in. csg. 1,343 ft.; W.O.C.
Gerhig Co.'s No. 1 Tompkins, 1,321 ft. W, 660 ft. N, C Sec. 18-21-15. Set 7-in. csg. 1,569 ft.; T.D. 1,699 ft.; acd. with 2,000 gal.; tstd. dry; W.O.
Jones Oil Co.'s No. 1 Pitts, 250 ft. S, 674 ft. W, NE cor. Sec. 24-20-16. Tstd. dry 1,679 ft., S.O.; acdzd. with 3,000 gal.; W.O.
C. C. Lowery's No. 1 Huckaby, 890 ft. S, 990 ft. E, C Sec. 7-20-15. R.U.
P. N. McCullough's No. 4 Hart, 673 ft. N, 620 ft. E, SW cor, Sec. 21-21-16. Set 10-in. csg. 60 ft.; S.D. 350 ft.
McDonald & Campbell's No. 14 Youree, 1,160 ft. E, 2,370 ft. N, SW cor, Sec. 7-20-14. Set 7-in. csg. 1,386 ft.; W.O.C.
McElmury & Hamilton's No. 1 Mattson, 591 ft. W, 1,866 ft. S, NE cor. NW Sec. 1-20-16. Set 7-in. 1,329 ft.; W.O.C.
J. Ray Murray et al's No. 1 Barfield, 1,470 ft. SE cor. Sec. 21-21-15. R.U.
Riggs & Lester's No. 2-A Seybert, 218 ft. N, 4,242 ft. E, C Sec. 17-20-15. Set 5½-in. 1,338 ft.; T.D. 1,640 ft.; will acd.
Southern Oil & Gas Co., Inc.'s No. 1 Muslow, 1,654 ft. S, 573 ft. W, NE cor. NW Sec. 5-20-15. Drlg. 350 ft.
Stanolind O. & G. Co. No. 1. 131 Dillonhrs., C SE NE Sec. 14-21-15. Ran Schmb. 9,109 ft.; T. Smkvr. L. 8,952 ft.; ran Schlum. 10,164 ft.; T. cap rock 10,148 ft.; igneous rock 11,419 ft.; T. salt 10,159 ft.; base salt 11,405 ft.; T.D. 11,419 ft.; P.B. to 9,981 ft. and tstd. mud 7,546-62 ft.; squeezed off to test other sds.
Stanolind O. & G. Co.'s No. 5 Huckaby, 490 ft. N, 990 ft. E, SW cor. SW¼ Sec. 11-21-15. Set 5½-in. csg. 1,527 ft.; T.D. 1,695 ft.; W.O.C.
Joe G. Strahan's No. 1-B Stiles, 330 ft. S, 1,000 ft. E, NW cor. Sec. 32-21-16. Set 5½-in. csg. 2,308 ft.; tstg. 2,386 ft.
Sultana Drlg. Co.'s No. 1 Bain, 198 ft. W, 480 ft. N, SE cor. Sec. 4-23-15. Set 5½-in. csg. 6,009 ft.; T.D. 6,100 ft.
Temple Oil Co.'s No. 1 Huckaby-Parker, 1,320 ft. N, 330 ft. E, SW cor. SE Sec. 13-22-16. Drlg. sh. 1,630 ft.
Texas Co.'s No. 1 Atkins fee, 575 ft. N, 2,918 ft. E, SW cor. NW Sec. 7-20-15. Drlg. 1,358 ft.
Travis & Red Iron Drlg. Co.'s No. 1 Chandler et al, 819 ft. S, 2,086 ft. E, NW cor. Sec. 5-23-15. Set 9⅝-in. csg. 961 ft.; hole clean; cond. mud; T.D. 5,220 ft.
Waldron & Barnes' No. 1 Ark. Fuel Oil fee, 438 ft. N, 1,368 ft. E, SW cor. NW SE Sec. 1-20-16. Set 5½-in. csg. 1,354 ft.; T.D. 1,490 ft.; W.O.C.

Caldwell Parish

Critchett & Woods (formerly E. T. Oakes) No. 1 Kyles, NE cor. SW NE Sec. 18-11-3e. T.D. 4,975 ft.; D.S. stk.; lub. with 100 bbl. oil.

Catahoula Parish

Bell Drlg. Co.'s No. 1 Peck, 698 ft. S, 169 ft. W, NE cor. SW NE Sec. 33-11n-8e. Drlg. sh. 3,263 ft.

Claiborne Parish

Lisbon Explin. Co. No. 1 Roberts Vaughn, 330 ft. N, 660 ft. E, SW cor NW NE Sec. 36-21-5. O.W.D.D.; O.T.D 5,313 ft.; recmtd. 7-in. csg. 5,343 ft.; T. Tr. Pk. 5,405 ft.; T. lower Marine form. 7,833 ft.; gas and dist. sd. 8,817-48 ft., hd. and tight; set 5-in. csg. 8,881 ft.; perf. 8,354-83 ft.; D.S.T. 8,354-83 ft.; ¾-in. cks. T.&B.; tstd. S.W. in 37 min.; no pr.; set retainer 8,326 ft. and sqzd.; drld. out and swbg. S.W. in csg.; W.O. cmt.; to resqueeze.

De Soto Parish

N. W. Hunter's No. 1 Anders-LeBlanc, C NW SE Sec. 5-11-14. Set 10-in. csg. 590 f.; D.ST. 1,954-74 ft.; rec. 150 ft. mud, 25 min.; S.S.O.; drlg. hd. sh. and L. 3,993 ft.
Dewey Jaun's No. 1 Frost Lbr. Ind., 660 ft. SE cor. SW Sec. 14-22-3e. Drlg. sh. 350 ft.
David Murray's No. 1 Russell, 50 ft. N, 500 ft. W, SE cor. NE NW Sec. 12-11-16. D.S.T. 2,725-36 ft.; rec. 1,000 ft. S.W. in 33 min.; cd. S.W. sd. 2,736-38 ft.; Set 450 ft. 4½-in. csg. 1,520 ft.; drlg. 2,812 ft.
C. H. Tuttle No. 2-A Wemple, E NW cor. SW¼ Sec. 14-12n-11w. T. bkn. sd. 2,640 ft.; 6⅝-in. csg. 2,557 ft.; tstg. 2,699 ft.; C.O.

La Salle Parish

Smith Bros.' No. 1 Kenney, 660 ft. S 150 ft. W, C Sec. 7-10-2e. T. sd. 1,517 ft.; set 8¼-in. csg. 1,517 ft.; T.D. 1,527 ft.; tstg. 1,527 ft.

Morehouse Parish

Union Prod. Co. No. 1-A Tensas-Delta, 1,894 ft. W, 1,584 ft. S, NE cor. SE Sec. 8-22-4. Set 20-in. csg. 125 ft.; 16-in. csg. 712 ft.; set 10¾-in. csg. 2,448 ft.; T. salt 8,114 ft.; drlg. sh. 9,570 ft.

Natchitoches Parish

Jack Lent et al's No. 1 Walker, C NE NE Sec. 9-10-10. 10-in. csg. 63 ft.; reported small S.O. 2,018 ft.; D.S.T. 2,007-18 ft.; rec. 32 jts. S.W.; S.D.

Sabine Parish

Ed Bailey's No. 1 Hale, 330 ft. NW cor. NE NW Sec. 6-7-12. S.D. for wtr. 1, 228 ft.
A. R. Chestnut et al's No. 1 Sepulvedo, 990 ft. N, 330 ft. E, SW cor. Sec. 4-7-13. T. clk. 2,022 ft.; set 6-in. csg. 2,027 ft.; acid. with 1,000 gal.; tstg. 2,205 ft.
Hunter Co.'s No. 2-B Sabine Lbr. Co., C SE SE Sec. 7-7-13. Fsg. D.S. 2,160 ft.
M. Lanza's No. 1 Phares, 330 ft. SE cor. NE SE Sec. 5-5-12. Drlg. hd. sh. 2,508 ft.
N. B. Livingston's No. 1 Bowman Hicks, 660 ft. SE cor. SW Sec. 36-9-14. R.U.
Major Oil Co.'s No. 8 Bowman Hicks, 25 ft. N, 400 ft. E SW cor., NW SW Sec. 7-7-12. Set 7-in. csg. 2,240 ft.; W.O.C.
E. R. Phillips' No. 1 Craig, 335 ft. S, 330 ft. E, NW cor. NW SE Sec. 22-9-13. S.D. 1,936 ft.; W.O.
A. C. Phillips' No. 1 Frost Lbr. Ind., 330 ft. NE cor. Sec. 34-10-13. T.D. 550 ft.; S.D., fuel.
W. L. Posey No. 1 Rivers, C NW NW Sec. 26-8-13. 6-in. csg. 2,147 ft.; T.D 2,150 ft.; T. clk. 2,145 ft.; tstd. S.O. and acd. with 3,000 gal.; tstg. 2,515 ft.
Reirue Oil Co.'s No. 1 Sabine, SE cor. NE SE Sec. 8-7-13. 6-in. csg. 2,061 ft.; T.D. 3,547 ft.; P.B. 2,350 ft.; tstg. small S.O.&wtr.; S.D.
Claude H. Smith's No. 1 Whitney Corp., 330 ft. N & E C Sec. 24-10-14. R.U.
S. E. Stack's No. 1 Gray, 330 ft. SW cor Sec. 4-7-13. T. clk. 2,025 ft.; set 7-in csg. 2,028 ft.; cd. S.W. sd. 2,472 ft.; will P.B.
J. E. Stack's No. 1 Weber, 330 ft. SE cor. SW NE Sec. 8-7-13. Set 10-in. csg. 42 ft.; W.O.C.
Sutton-Zwolle Oil Co.'s No. 3 Sabine, 1,650 ft. S, 660 ft. E, NW cor. NE Sec. 23-7-14. S.D.

Union Parish

W. E. Hope O. & G. Co.'s No. 6 Frost Lbr. Ind., Sec. 26-22-3. Set 6-in. csg. 2,092 ft.
We Hope Gas & Oil Co.'s No. 8 Frost Lbr. Ind., Sec. 23-22-3. R.U.
Interstate Nat. Gas Co.'s No. 95 fee, Sec 36-22-3e. Set 6-in. csg. 2,120 ft.
Memphis Nat. Gas Co.'s No. 1 Day, 951 ft. S, 277 ft. E, NW cor. Sec. 24-22-3e. Set 6-in. csg. 2,135 ft.
Memphis Nat. Gas Co.'s No. 3 Frost Lbr. Ind., Sec. 15-22-3, 8-in. csg. 782 ft. W.O.C.
United Carbon Co.'s No. 1 McKinney, Sec. 14-22-3. Drlg. 1,910 ft.
United Carbon Co.'s No. 1 Reppond, Sec 14-22-3. Set 8-in. csg. 745 ft.; W.O.C.
H. L. Woods' No. 1 Union Power, 1,980 ft. E, 660 ft. S, NW cor. Sec. 29-21-3. R.U.

Webster Parish

Hunt Oil Co.'s No. 3 Stewart, C NE NW Sec. 29-21-10. Drlg. sh. 6,567 ft.
Hunt Oil Co.'s No. 4 Stewart, 480 ft. S, 835 ft. E, NW cor. SW Sec. 32-21-10. Drlg. sh.&L. 6,356 ft.
Oliphant Oil Co.'s No. 2 Banks, 410 ft. S, 660 ft. E, NW cor. Sec. 2-20-10. Set 9⅝-in. csg. 5,611 ft.; drlg. hd. sdy. 8,155 ft.
Quad Oil Corp.'s No. 2 Bodcaw, Sec. 15-21-10. O.W.D.D.; O.T.D. 4,732 ft.; set whpstk. 4,378 ft.; W.O.C.
Stanolind O. & G. Co.'s No. 4 Pardee, 660 ft. SE cor. Sec. 25-21-10. T. Tr. Pk 5,829 ft.; 9⅝-in. csg. 5,950 ft.; drlg. 5,829 ft.; 9⅝-in. csg. 5,950 ft.; 9⅝-in. csg. 5,863 ft.; hole off 4°, whpstk. 6,989 ft.; set 2nd whpstk. 7,258 ft.; drlg. sh.&sd. 7,694 ft.
Woodley Pet. Co.'s No. 2 Couch, 810 ft. S, 510 ft. W, NE cor. SW Sec. 35-21-10. 13⅜-in. csg. 683 ft.; set 9⅝-in. csg. 5,775 ft.; drlg. hd. sd. 7,839 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 David Meaux, Sec. 9-12s-3e. T.D. 11,359 ft.; T. gas sd. 11,318 ft.; D.S. stk.; P.B. and sidetracked; drlg. 8,570 ft.
Continental Oil Co. No. 1 Franciol, Sec. 67-12s-3e. Drk.
Continental Oil Co.'s No. 1 Motty, Sec. 18-12s-3e. R.U.
Stanolind O. & G. Co.'s No. 1 Lebocut, Sec. 33-12s-3e. T.D. 8,312 ft.; sdtrkd. 6,134 ft.; drlg. sdy. sh. 6,839 ft.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 9 Columbia Ld. & Tmbr. Co., Sec. 15-6s-13w. T.D. 7,330 ft.; I.P. 112 B.P.D.; ¼-in. ck.
Republic Prod. Co.'s No. 1 G. T. Whitman, Sec. 15-6s-13w. T.D. 7,337 ft.; 5½-in. csg. 7,332 ft.; I.P. 42 B.P.D.; ¼-in. ck.
Republic Prod. Co.'s No. 1 J. A. Whitman, Sec. 15-6s-13w. Drlg. sh. 6,827 ft.
Republic Prod. Co.'s No. 1-B Whitman, Sec. 15-6s-13w. T.D. 7,332 ft.; 5½-in. csg. 7,332 ft.; tstd. S.W.; abd.
Republic Prod. Co.'s No. 3 L. Whitman, Sec. 15-6s-13w. T.D. 7,662 ft.; 5½-in. csg. 7,662 ft.

Bateman Lake—St. Mary Parish

Texas Co. No. 1 St. Mary Parish Sch. Bd., Sec. 16-16s-12e. Gas sd. 11,169-79 ft.; cd. sd. dist. cut 11,516-19 ft.; T.D. 11,589 ft.; 7-in. csg. 11,579 ft.; perf. csg. to test.
Texas Co.'s No. 3 Way Bayou, Sec. 21 16s-12e. Loc.

Baton Rouge—East Baton Rouge Parish

W. V. Bowles et al's No. 3 University Hills, Sec. 68-7s-1w. T.D.; 6,508 ft.; comp.; no ga.
Guaranty Oil Co. No. 2 Morgan, Sec. 65-7s-1w. T.D. 6,530 ft.; 5½-in. csg. 6,450 ft.; swbd. S.W.; S.D.
T. G. Markley et al's No. 8 Knox Amiss, Sec. 67-7s-1w. T.D. 6,486 ft.; run 7-in. csg.; tstg.
Sugarfield Oil Co.'s No. 2 Irby Nichols, Sec. 45-7s-1e. T.D. 4,390 ft.; 5½-in. csg. 4,390 ft.; perf. csg. 4,345-67 ft.; I.P. 65 bbl. net oil, 75% S.W.; ¼-in. ck.; killed to W.O.

Bay St. Elaine—Terrebonne Parish

Texas Co.'s No. 3 L.L.&E., Sec. 18-22s-18e. Loc.

Bayou Choctaw—Iberville Parish

Standard Oil Co. of La.'s No. 12 Wilbert, Sec. 53-9s-11e. Spd.

Bayou Des Allemand—La Fourche Parish

Amerada Pet. Corp.'s No. 3 Gheens, Sec. 56-15s-20e. Bldg. drk.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co. No. 1-B Wilbert, Sec. 78-8s-8e. T.D. 3,025 ft.; 13⅜-in. csg. 3,000 ft.; T. salt 4,101 ft.; T.D. 4,182 ft.; S.D.
Humble O. & R. Co.'s No. 2-B Wilberts, Sec. 78-8s-8e. Loc.

Black Bayou—Cameron Parish

Shell Oil Co., Inc.'s No. 43 Watkins, Sec. 7-12s-12w. Drlg. sh. 2,730 ft.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 12 State, Sec. 20-23s-20e. T.D. 4,982 ft.; sdtrkd.; T. salt 6,228 ft.; T D. 6,236 ft.; P.B. 5,006 ft.

Cameron Meadows—Cameron

Magnolia Pet. Co. No. 25 Cameron Meadows, Sec. 21-14s-13e. T.D. 6,955 ft.; 7-in. csg. 6,494 ft.; perf. csg. 6,280-90 ft.; abd.

Chacahoula—La Fourche Parish

Sun Oil Co. No. 1 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,842 ft.; T. salt 6,072 ft.; T.D. 6,088 ft.; P.B. 2,100 ft.; sdtrkd.; T.D. 6,553 ft.; fsg.; sdtrkd.; T.D. 5,544 ft.; P.B. to sdtrk.
Sun Oil Co.'s No. 6 Dibert, Stark & Brown, Sec. 70-15s-15e. Drlg. 1,612 ft.
Sun Oil Co. No. 2 Dodge Sunberry, Sec. 65-15s-15e. S.D. 4,259 ft.; T.A.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 1 Cameron Sch. Bd., Sec. 16-12s-6w. Loc.
Humble O. & R. Co.'s No. 5 K. B. Hanzen, Sec. 9-12s-6w. Drlg. sh. 4,645 ft.
Humble O. & R. Co.'s No. 5 Sweet Lake Ld. & Oil Co., Sec. 7-12s-6w. T.D. 8,393 ft.; abd.
Shell Oil Co., Inc.'s No. 4 Hanzen, T.D. 8,990 ft.; P.B. 8,895 ft.; perf. csg. 8,917-26 ft.; I.P. 642 B.P.D.; 16/64-in. ck.
Shell Oil Co., Inc.'s No. 5 Hanzen, Sec. 21-12s-6w. Loc.

Charenton—St. Mary Parish

Pan American Prod. Co.'s No. 3-A H. Ecuer, Sec. 11-13s-9e. T.D. 2,464 ft.; 7-in. csg. 2,456 ft.
Pan American Prod. Co.'s No. 17 Laws Realty Co., Sec. 31-13s-10e. T.D. 7,208 ft.; rng. csg.
Pan American Prod. Co.'s No. 6 South Coast Corp., Sec. 31-13s-10e. T.D. 7,189 ft.; 5½-in. csg. 7,182 ft.

Cheneyville—Rapides Parish

Amerada Pet. Corp.'s No. 7 Well Co., Sec. 54-1s-2e. T. sd. 5,710 ft.; T.D. 5,814 ft.; 5½-in. csg. 5,814 ft.
S. W. Richardson's No. 5 Well, Sec. 53-1s-2e. T.D. 5,899 ft.; 5½-in. csg. 5,899 ft.; perf. csg. 5,670-90 ft.; I.P. 299 B.P.D.; ¾-in. ck.
S. W. Richardson's No. 6 Well, Sec. 53-1s-2e. Drlg. sh. 2,612 ft.

Creole—Cameron Parish

Superior Oil Co.'s No. 9 State, Gulf of Mex., Twp. 15s-8w. T.D. 5,589 ft.; sidetracked; drlg. sh.&L. 5,097 ft.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 27 Community, Sec. 30-10s-2e. Drlg. sh. 4,730 ft.
Kiva Oil Co. No. 1 Duplessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 23 State, Sec. 5-22s-16e. T.D. 7,429 ft.; P.B.; sdtrkd.; T.D. 6,105 ft.; P.B.; sdtrkd.; T.D. 7,429 ft.; 7-in. csg. 6,871 ft.; cg. sh. 6,910 ft.

Edgerly—Calcasieu Parish

Sutton-Burton Joint Acct.'s No. 1 J. H. Embry, Sec. 29-9s-11w. Drlg. 815 ft.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 1 Avoyelles Bnk., Sec. 5-2s-3e. Drlg. sh. 7,812 ft.
Amerada Pet. Corp.'s No. 1 L. B. Dent, Sec. 10-2s-2e. R.U.
Amerada Pet. Corp.'s No. 4 Glaze, Sec. 6-2s-3e. T.D. 8,563 ft.; 5½-in. csg. 8,563 ft.; perf. csg. 8,445-8,545 ft.; I.P. 747 B.P.D.; ¼-in. ck.
Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. R.U.
Amerada Pet. Corp.'s No. 7 Marchive, Sec. 6-2s-3e. T.D. 8,559 ft.; T.D.
Amerada Pet. Corp.'s No. 1 White et al, Sec. 7-2s-3e. T.D. 8,558 ft.; 5½-in. csg. 8,557 ft.; perf. csg. 8,430-8,530 ft.
W. C. Feazel et al's No. 1 R. Z. Sclater, Sec. 1-2s-2e. Drlg. sh. 6,937 ft.
G. W. Kenedy's No. 1 R. R. Irion, Sec. 1-2s-2e. Drlg. sh. 3,927 ft.
S. W. Richardson's No. 1-A Haas, Sec. 11-2s-2e. T.D. 8,535 ft.; abd.
S. W. Richardson's No. 7 Haas Inv. Co., Sec. 7-2s-3e. T.D. 8,520 ft.; tstg.
Sun Oil Co.'s No. 2 Townsend, Sec. 8-2s 3e. Drlg. sh. 6,720 ft.

Fausse Point—Iberia Parish

Texas Co.'s No. 6 State, Twp. 11s-8e. 13⅜-in. csg. 1,407 ft.; T. salt 5,408 ft.; T.D. 5,415 ft.; 7-in. csg. 5,314 ft.

Gorden Island—Plaquemines Parish

Texas Co.'s No. 38 State, Sec. 38-23s-33e. Drlg. sh. 2,613 ft.
Texas Co.'s No. 39 State, Sec. 38-23s-33e. Drlg. sdy. sh. 5,212 ft.

Golden Meadow—La Fourche Parish

Bateman Drlg. Co.'s No. 1 Harry Louviere, Sec. 9-19s-22e. S.D. 5,560 ft.
Bennett Oil Co.'s No. 3 Cheramie, Sec. 12-19s-22e. Drlg. 3,897 ft.
Berkshire Oil Co.'s No. 8 Nicol, Sec. 9-19s-22e. Drlg. sh. 3,876 ft.
Berkshire Oil Co.'s No. 9 Nicol, Sec. 9-19s-22e. T.D. 2,659 ft.; perf. csg. 2,650-56 ft.; tstg.
Boller & Rutledge's No. 1 Burger Cheramie, Sec. 12-19s-22e. 10¾-in. csg. 803 ft.; T.D. 5,502 ft.; W.O.C.
Brown & Woods' No. 1 S. Hogan, Sec. 9-19s-22e. T.D. 2,710 ft.; P.B. to 1,500 ft.; sdtrkd.; T.D. 2,672 ft.; 7-in. csg. on bttm.; perf. csg. 2,655-64 ft.; tstg.
Peter Cioban's No 1 Nat Alario, Sec. 2-19s-22e. Drlg. 300 ft.
Taylor Fithian's No. 1 Cheramie, Sec. 12-19s-22e. Drk.
Taylor Fithian's No. 1 Orgeron, Sec. 2-19s-22e. 10¾-in. csg. 103 ft.; drlg. 2,310 ft.
Golden Meadows Oil Co.'s No. 1 Whitney Rebstock, Sec. 2-19s-22e. Drk.
Wm. Helis' No. 3 Gasnard, Sec. 9-19s-22e. T.D. 2,660 ft.; tstg.
Jim McMurrey's No. 1 P. Collins, Sec. 12-19s-22e. Drlg. 1,410 ft.
Martex Oil Co.'s No. 1 Rebstock, Sec. 2-19s-22e. Loc.
M. H. Marr & Vaughn's No. 2 Adam Terrebonne, Sec. 9-19s-22e. Drlg. sdy. sh. 8,446 ft.
S. Rhodes Drlg. Co.'s No. 1 Falgout Holding Co., Sec. 12-19s-22e. T.D. 5,498 ft.; 7-in. csg. 5,498 ft.; perf. csg. 5,185-95 ft.; tstg.
Terouche Oil Co.'s No. 2 Cheramie, Sec 12-19s-22e. Drk.
Texas Co.'s No. 4 Falgout Holding Co., Sec. 9-19s-22e. R.U.
Texas Co.'s No. 5 Falgout Holding Co., Sec. 9-19s-22e. T.D. 2,700 ft.; 7-in. csg. 2,700 ft.; perf. csg. 2,645-60 ft.; tstg.
Texas Co.'s No. 6 Falgout Holding, Sec. 9-19s-22e. Loc.
Texas Co.'s No. 4 L.L.&E., Golden Mead-

ow, Sec. 78-19s-22e. T.D. 5,370 ft.; 7 in. csg. 5,370 ft.; perf. csg. 5,318-30 ft.; tstg.
Texas Co.'s No. 6 L.L.&E.-Golden Meadows, Sec. 78-19s-21e. 10¾-in. csg. 57? ft.; T.D. 5,436 ft.; 7-in. csg. 5,374 ft.; perf. csg. 5,304-22 ft.; tstg.
Texas Co.'s No. 4 State-Catfish, Sec. 3 20s-21e. Drig. sdy. sh. 2,775 ft.
Texas Co. No. 3 State-Catfish Lake, Sec 76-19s-21e. T.D. 3,509 ft.; 7-in. csg. 2 805 ft.; perf. csg. 2,740-62 ft.; W.O S.R.

Grand Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 5-A Grand Prairie Sec. 31-19s-19e. T.D. 8,085 ft.; run 9⅝-in. csg.; comp.; no ga.
Gulf Oil Corp. No. 6-A Grand Prairie Lv. Dist., Sec. 17-20s-10e. T.S. 9,977 ft.; cg. 10,438 ft.
Gulf Oil Corp.'s No. 7-A Grand Prairie Lv. Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 8-A Grand Prairie Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 4 State, Sec. 20-19s-19e. Loc.
Texas Co. No. 1 State-Lookout Pass, Sec 48-20s-18e. Loc.

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 2 Mallard Bay, Twp. 15s-4w. 10¾-in. csg. 1,317 ft.; drlg. sh. 7,886 ft.
Superior Oil Co.'s No. 4 Grand Lake, Twp. 13s-4w. T.D. 8,798 ft.; 7-in. csg 8,796 ft.; perf. csg. 8,359-74 ft.; I.P. 12 B.P.H.; ⅛-in. ck.
Superior Oil Co.'s No. 5 State, Twp. 13s-4w. Loc.

Hackberry—Cameron Parish

Gulf Oil Corp. No. 25-A Erwin, Sec. 1? 12s-10w. Drlg.
Stanolind O. & G. Co.'s No. 20 Cameron Par. Sch. Ld., Sec. 16-12s-10w. Drlg. sh.&L. 6,212 ft.
Stanolind O. & G. Co.'s No. 30-B Gulf Ld., Sec. 31-12s-10w. T.D. 7,225 ft.; P. B. 4,800 ft.; sdtrkd.; drlg. sh.&L. 6,312 ft.
Superior Oil Co.'s No. 7 Benson Vincent Sec. 30-12s-10w. T.D. 7,862 ft.; 5½-in. csg. 7,638 ft.; perf. csg. 7,329-34 ft. and 7,340-50 ft.; I.P. 10 bbl. dist.
Superior Oil Co.'s No. 8 Benson-Vincent, Sec. 30-12s-10w. Spd.
Texas Co.'s No. 29-B State, Twp. 12s-9w. Spd.
Union Sulphur Co.'s No. 1 Simon Doiron Sec. 37-12s-10w. T.D. 7,274 ft.; W.O.C. 323 ft.; drlg. sh.&L. 11,641 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 3 State, Sec. 40-17s-9e T. sd. 11,311 ft.; cg. sd. S.O.&G. 11,323 ft.

Jeanerette—St. Mary Parish

Continental Oil Co.'s No. 1 Leon De Mary, Sec. 17-12s-3e. Loc.
Herton Oil Co.'s No. 6 Roane, Sec. 38 13s-9e. Drlg. sh. 10,216 ft.

Jefferson Island—Iberia Parish

Texas Co.'s No. 3 State, Twp. 12s-5e. R.U.

Jennings—Acadia Parish

Glassell-Glassell No. 8 Trusher, Sec 4? 9s-2w. T.D. 9,085 ft.; well trying to blow out.
Gulf Oil Corp.'s No. 42 Arnaudet, Sec. 47-9s-2w. Drlg. 5,020 ft.
Port City Oil Co.'s No. 25 Synd., Sec. 41-9s-2w. Drlg. 1,340 ft.
Shell Oil Co., Inc.'s No. 8 Community. Drlg. sh. 6,903 ft.
Stanolind O. & G. Co.'s No. 116 Crowley O. & M. Co., Sec. 48-9s-2w. Drlg. sh. 2,830 ft.

Lafitte—Jefferson Parish

Texas Co. No. 14 Lafitte, Sec. 20-17s-24 T.D. 4,599 ft.; P.B. 3,404 ft.; sdtrkd.; drlg. sdy. sh.&L. 8,020 ft.
Texas Co.'s No. 4 Marrero, Sec. 21-17s-24e. Drlg. sh.&L. 8,823 ft.

Lake Long—La Fourche Parish

Fohs Oil Co.'s No. 11 State, Twp. 17s 19e. 10¾-in. csg. 2,034 ft.; T.D. 10,197 ft.; run 7-in. csg.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 28 State, Sec. 7-23s-18e. T.D. 5,752 ft., salt; P.B. to sdtrk.; cg. sdy. sh. 5,137 ft.

La Pice—St. James Parish

Shell Oil Co., Inc.'s No. 1 Lebermuth & Israel. Cg. sd. 10,000 ft.
Shell Oil Co., Inc.'s No. 2 Natalbany Lbr Co., Sec. 19-9s-2e. T.D. 9,536 ft.; abd.

Leesville—Plaquemines Parish

Texas Co.'s No. 72 L.L.&E., Sec. 27-21s-22e. T.D. 5,041 ft.; sdtrkd.; T. salt 6,854 ft.; T.D. 6,866 ft.; 7-in. csg. 6,822 ft.; perf. csg. 6,735-75 ft.; tstd. oil and S.W.

New Iberia—Iberia Parish

Wm. Helis' No. 10 Bolivar, Sec. 56-12s-7e. Loc.
Wm. Helis' No. 7 Sabatier, Sec. 54-12s-7e. 7-in. csg. 2,205 ft.; T.D. 3,090 ft.; P.B. 2,995 ft.; 5½-in. csg. 3,010 ft.
Wm. Helis No. 7 J. E. Schwing, Sec. 58 12s-7e. T.D. 8,850 ft.; P.B. 7,840 ft.; T.D. 8,850 ft.; P.B. 8,025 ft.; went back into old hole; P.B. and sdtrk.; drlg. 7,443 ft.
J. J. Hooper's No. 1 Marston, Sec. 51-12s-7e. T.D. 902 ft.; 5½-in. csg. 875 ft.
Texas Co. No. 2 Bryant, Sec. 25-12s-7e R.U.
Texas Co.'s No. 12 Duhe, Sec. 26-12s-7e. T.D. 3,644 ft.; 7-in. csg. 3,627 ft.; perf. csg. 3,570-84 ft.; I.P. 300 B.P.D.; ¼-in. ck.
Texas Co.'s No. 1 Polk Hebert, Sec. 25-12s-7e. Drlg. sh. 5,720 ft.
Texas Co.'s No. 3 Schwing, Sec. 71-12s-7e. Drlg. sh. 8,850 ft.
Texas Co.'s No. 1 H. Perry Walet, Sec. 2-12s-7e. Drlg. 1,210 ft.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 2 Davis, Sec. 44-8s-1e. T.D. 8,204 ft.; tstg.
Humble O. & R. Co.'s No. 5 Habetz, Sec. 45-8s-1e. T.D. 8,226 ft.; 5½-in. csg. 5,534 ft.; perf. csg. 5,307-24 ft.
Humble O. & R. Co.'s No. 6 Ohlenforst, Sec. 34-8s-1e. Loc.
Humble O. & R. Co.'s No. 2 Thevis, Sec. 34-8s-1e. Drlg. 2,930 ft.

North Elton—Allen Parish

Stanolind O. & G. Co.'s No. 1 G. W. Jenkins, Sec. 23-6s-3w. S.D. 7,760 ft.

Paradis—St. Charles Parish

Texas Co. No. 2 L.L.&E. Paradis, Sec 6-14s-20e. Cd. sd., dist. odor 10,085-8? ft.; 7-in. csg. 10,497 ft.; drlg. sdy. sh 11,156 ft.

Perkins—Calcasieu Parish

Humble O. & R. Co.'s No. 3 Edgewood Ld. & Lgng. Co., Sec. 5-8s-10w. Loc.

Plumb Bob—St. Martin Parish

Texas Co.'s No. 13 St. Martin Ld. Co., Sec. 21-8s-7e. Dredge canal.

Port Barre—St. Landry Parish

Gulf Oil Corp.'s No. 17 Wilson-Broach, Sec. 4-6s-5e. Cg. sd. 4,530 ft.
McDannald Oil Co.'s No. 2 Tutral, Sec. 20-6s-5e. Loc.
Pan American Prod. Co.'s No. 4 Cormier, Sec. 4-6s-5e. T.D. 5,425 ft.; P.B.; sidetracked; drlg. sh. 4,580 ft.
Pan American Prod. Co.'s No. 5 Garland, Sec. 4-6s-5e. T.D. 5,080 ft.; 5½-in. csg. 5,064 ft.
T. D. Spill No. 1 Gaudet, Sec. 4-6s-5e S.D. 4,700 ft.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 41 Orleans, Sec. 14-18s-15e. Drlg. sh. 4,520 ft.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 3-A Plaquemines Ld. Co., Sec. 7-19s-17e. Cg. sd. 8,185 ft.
Gulf Oil Corp. No. 9 State QQ, Sec. 18 19s-17e. Loc.
Gulf Oil Corp.'s No. 14 State, Sec. 7-19s-17e. Drlg. sh. 4,510 ft.

Sorrento—Ascension Parish

Sorrento Synd. No. 1 L. L. Bernard, Sec. 27-10s-4e. S.D. 8,004 ft.

South Houma—Terrebonne Parish

Shell Oil Co., Inc.'s No. 4 Peters, Sec. 72-18s-18e. T.D. 10,220 ft.; sd.

South Jennings—Jeff Davis Parish

Stanolind O. & G. Co.'s No. 1 Doherty, Sec. 15-10s-3w. S.D. 9,390 ft.

Starks—Calcasieu Parish

W. T. Burton's No. 1 Industrial Lbr. Co., Sec. 29-9s-1w. Drlg. sh. 6,089 ft.

Valentine—La Fourche Parish

Wm. Helis' No. 5 Valentine Sugars, Inc., Sec. 2-17s-20e. 10¾-in. csg. 1,632 ft.; T.D. 7,845 ft.; P.B. 6,965 ft.; 7-in. csg. 6,990 ft.; tstd. oil&S.W.; pull screen.
Pan American Prod. Co.'s No. 3-A Community, Sec. 10-17s-20e. Drlg. sdy. sh. 9,445 ft.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 6 Buras Lv. Bd., Sec. 35-21s-30e. Driv. piling.
Tide Water Asso. Oil Co.'s No. 6 Buras Lv. Bd., Sec. 27-21s-30e. T.D. 10,475 ft.; run csg.

Villa Platte—Evangeline Parish

Continental Oil Co.'s No. 2 Attales, Sec. 45-3s-2e. Drlg. sh. 8,827 ft.
Continental Oil Co.'s No. 4 A. M. Fontenot, Sec. 46-3s-2e. T.D. 9,030 ft.; 6-in. csg. on bttm.; perf. csg. 9,001-06 ft.; I.P. 267 B.P.D.; ⅛-in. ck.
Continental Oil Co.'s No. 4 Hattie Haas, Sec. 44-3s-2e. Loc.
Continental Oil Co.'s No. 4 Hirsch, Sec. 44-3s-2e. T.D. 9,062 ft.
Continental Oil Co.'s No. 5 Opelousas, St Landry, Sec. 44-3s-2e. T.D. 9,045 ft.; I.P. 220 B.P.D.; ⅛-in. ck.
Continental Oil Co.'s No. 2 Phillip Fontenot, Sec. 44-3s-2e. Drlg. sh. 6,720 ft.
Continental Oil Co.'s No. 2 W. L. Tate, Sec. 40-4s-2e. Loc.
Continental Oil Co.'s No. 1 J. E. Vidrine, Sec. 41-4s-2e. T.D. 9,077 ft.; perf. csg. 8,890-8,900 ft.; I.P. 272 B.P.D.; ¼-in. ck.
J. K. Hughes' No. 1 J. E. Ortego, Sec. 36-3s-2e. Cg. sdy. sh. 10,226 ft.; cd. sd. S.O.&G. 9,960-90 ft. and 10,122-60 ft.; T.D. 10,306 ft.; 5½-in. csg. 10,301 ft.; perf. csg. 10,118-57 ft.; I.P. 29 B.P.D.; ¼-in. ck.

West Gueydan—Vermilion Parish

Magnolia Pet. Co.'s No. 1 Zwan, Sec. 6-12s-2w. Drlg. sh. 6,800 ft.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc.'s No. 4 Jeanerette. Drlg. sd. 2,079 ft.

White Castle—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Baist. S.D. 6,449 ft., salt.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 1 Raymond Hebert, Sec. 6-9s-5w. 7-in. csg. 9,575 ft.; drlg. sh.&L. 10,387 ft.
Union Sulphur Co.'s No. 1 E. A. Norton, Sec. 12-9s-5w. Drlg. sh. 8,390 ft.
Union Sulphur Co. No. 3 Mrs. O'Miller, Sec. 7-9s-5w. T.D. 8,867 ft.; tstg.
Woodlawn Oil Corp.'s No. 1 Hebert, Sec. 1-9s-6w. Cg. sdy. sh. 8,212 ft.

S. LOUISIANA WILDCATS

Acadia Parish

Tri Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. M.I. rig.

Allen Parish

Housh & Thompson's No. 1 Ind. Lbr. Co., Sec. 1-4s-5w. M.I.M.

Assumption Parish

Shell Oil Co., Inc.'s No. 1 C. S. Eellis. Sec. 9-16s-14e. T.D. 8,520 ft.; rmg.

Avoyelles Parish

Joe F. Beit's No. 1 Thompson & Katz, Sec. 23-2n-5e. R.U.

Beauregard Parish

Atlantic Ref. Co. No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.
Atlantic Ref. Co. No. 1 Rice Ld. & Lbr Co., Sec. 22-3s-11w. Loc.
California Co.'s No. 2 Long Bell Lbr Co., Sec. 12-5s-10w. Cg. sh. 10,035 ft. in Wlx. at 9,960 ft.
Republic Prod. Co.'s No. 9 Lutcher Moore Lbr. Co., Sec. 1-7s-12w. Cg. sdy. sh. 9,016 ft.

Calcasieu Parish

C. L. Arnette's No. 1 Arthur Welch, Sec. 19-10s-12w. 10¾-in. csg. 130 ft.; T.D. 395 ft.; S.D.
Gulf Oil Corp.'s No. 1 Amanda Brannon, Sec. 16-11s-10w. T.D. 9,704 ft.; abd.

Cameron Parish

Humble O. & R. Co.'s No. 1 F. J. Pavell, Sec. 5-15s-14w. Drlg. sh. 6,675 ft.
Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-14s-6w. Spd.

East Baton Rouge Parish

Farris & Golding Drlg. Co.'s No. 1 D. E McEnnis, Sec. 58-7s-1e. 20-in. csg. 42 ft.; 10¾-in. csg. 1,747 ft.; S.D. 6,623 ft.

Iberia Parish

Plymouth Oil Co. et al's No. 1 Lynch McHugh, Sec. 13-12s-10e. 10¾-in. csg. 2,519 ft.; drlg. sh. 2,543 ft.

Jefferson Parish

Continental Oil Co. No. 1 Bernstein, Sec. 2-16s-23e. Drlg. sh. 11,470 ft.

Lafayette Parish

Stanolind O. & G. Co.'s No. 1 Lacaze Billeaud et al, Sec. 35-10s-5e. Drlg. sdy. sh. 11,003 ft.

La Fourche Parish

Tide Water Asso. Oil Co. No. 1 Delta Farms, Inc., Sec. 6-17s-23e. Cg. 10,138 ft.

Orleans Parish

W. T. Burton No. 1 L.&N.R.R., Sec. 15-11s-15e. T.D. 10,394 ft.; 5½-in. csg. 10,274 ft.; S.D.

Plaquemines Parish

Gulf Oil Corp.'s No. 1-D Buras Lv. Dist., Sec. 6-23s-31e. Dredge canal.

Rapides Parish

Rantex Pet. Corp.'s No. 1 Mathews, Sec. 6-1n-1e. R.U.

St. Bernard Parish

Gulf Ref. Co. No. 4-State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; rmd. to 9,658 ft.; lost core bbl.; P.B. sdtrkd. 8,912 ft.; T.D. 10,528 ft.; 7-in. csg. 10,404 ft.; tag.

St. John the Baptist Parish

Pan American Prod. Co. No. 1 Mill, Sec. 12-11s-7e (LaPlace prospect). 10¾-in. csg. 2,837 ft.; T.D. 8,896 ft.; D.S.T. 8,870-96 ft.; tstd. 600 lb. W.P.; rec. 10 gal. dist.; T.D. 10,175 ft.; P.B. 10,043 ft.; prep. to perf. csg.; 7-in. csg. 10,120 ft.; perf. csg. 10,000-25 ft.; gas&S.W.; perf. csg. 8,115-22 ft.; rec. gas and dist.; run tbg.

St. Martin Parish

Wm. Helis' No. 2 Levert Plantation, Sec. 33-9s-7e. Drlg. sh.&L. 6,463 ft.
Wm. Helis' No. 1 Rycade Oil Co., Sec. 33-9s-7e. Drlg. sdy. sh. 8,052 ft.
Shell Oil Co., Inc., No. 1 Iberville Ld. Co., Sec. 86-8s-7e. T.D. 10,000 ft.; 5-in. csg. 9,819 ft.; perf. csg. 9,745-58 ft.; 40 holes; flwd. at rate of 1,013 B.P. D.; ¼-in. ck.; T.P. 1,875 lb.; C.P. 1,925 lb.

St. Mary Parish

Perry S. Cooney No. 1 A. W. Allain, Sec. 46-13s-9e. S.D. 2,600 ft.
Texas Co.'s No. 1 State West Cote Blanche Bay, Twp. 16s-7e. Loc.

St. Tammany Parish

LeRoy Guidry, Sec. 44-9s-14e. T.D. 1,013 ft.; abd.

Terrebonne Parish

Barnsdall Oil Co.'s No. 1 Nelson, Sec. 2-21s-11e. Spd.
Continental Oil Co. et al's No. 1 Peters, Sec. 32-19s-15e. 13⅜-in. csg. 1,987 ft.; drlg. sh. 10,495 ft.

Vermilion Parish

La. Ld. & Explo. Co.'s No. 3 La. Fur Co., Sec. 9-15s-1e. Drlg. sh.&L. 8,651 ft.
Texas Co.'s No. 1 Vermilion Par. Sch. Bd., Sec. 16-13s-4e. Cg. sh. 7,239 ft.

TEXAS

Week Ended November 25

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 1 M. W. Mettler, J. de Jesus Valderas Sur. 13⅜-in. csg. 944 ft.; 9⅝-in. csg. 7,139 ft.; drlg. sh. 9,866 ft.
Glenn McCarthy's No. 1 Ida M. Salmon and John Muma, Geo. Robinson Sur 9⅝-in. csg. 6,860 ft.; T. Frio 8,820 ft.; drlg. 9,920 ft.

Old Ocean—Brazoria County

Harrison-Abercrombie's No. 7 Armstrong, Polly & Chance Sur. Drlg. sd. &sh. 9,720 ft.
Harrison & Abercrombie's No. 7 Bernard River Ld. Dev. Co., C. Breen Sur. Drlg. sh.&L. 5,026 ft.
Harrison & Abercrombie's No. 1 Bertheisen, C. Breen Sur. Drlg. sh.&L. 10,039 ft.
Stanolind O. & G. Co.'s No. 1 Giles, C. Breen Sur. Drlg. 1,512 ft.
Sun Oil Co.'s No. 3 Borsodi, C. Breen Sur. 13⅜-in. csg. 1,515 ft.; drlg. L. 5,112 ft.
Sun Oil Co.'s No. 3 Campbell, C. Breen Sur. 13⅜-in. csg. 1,506 ft.; 9⅝-in. csg. 7,008 ft.; drlg. sdy. sh. 9,056 ft.

Cedar Point—Chambers County

Standard Oil Co. of Texas' No. 55-119 State. 10¾-in. csg. 1,607 ft.; T.D. 6,250 ft., S.W. sd.; P.B.; to test.

Seabreeze—Chambers County

Sun Oil Co. No. 2 Hoffman, T.&N.O. Sur No. 131. T.D. 8,400 ft.; W.O.C.

Turtle Bay—Chambers County

Stanolind O. & G. Co.'s No. 2 State, Tr. 39. 16-in. csg. 115 ft.; drlg. sh.&L. 4,730 ft.

Garwood—Colorado County

Davis & Co., Inc., No. 1 J. R. McLane, I.&G.N. Sur. 41. T.D. 9,780 ft.; D.S. stk.

Big Creek—Fort Bend County

Merrimac Oil Corp. No. 1 George, B. Wickson Sur. (SW flank). Spd. and S.D.

Caplen—Galveston County

Sun Oil Co.'s No. 3 Cade, A. Dickson Sur. 10¾-in. csg. 1,939 ft.; T.D. 7,532 ft.; taking sidewall cores.

League City—Galveston County

Phillips Pet. Co.'s No. 1 Brittnacher, S. F. Austin Sur. Cg. sh. 8,889 ft.
Phillips Pet. Co.'s No. 6 Lobit, Perry Austin Sur. Drlg. sh. 8,990 ft.
Phillips Pet. Co. No. 1 Dr. O. Patton (1 mi. E of production). Perf. csg. 9,177-97 ft.; flwd. S.W.; sqzd. perf.; C.O.
Phillips Pet. Co.'s No. 2 J. S. Rice est., J. M. Perry & Austin Sur. Drlg. sh. 9,836 ft.
Phillips Pet. Co.'s No. 3 Stewart Title Guaranty Co., S. F. Austin Sur. R.U.
Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10¾-in. csg. 3,520 ft.; drlg. sh. 10,380 ft.
Phillips Pet. Co. No. 1 Wimhurst (NW extension). T.D. 10,962 ft.; well tried to blow out; D.S. stk.; P.B. 10,630 ft.; perf. csg.; set 23 ft. screen on bttm. 10,882 ft.; flwd. 9 bbl. dist. P.D.; 9/64-in. ck.; T.P. 1,500 lb.

Bammel—Harris County

H. M. Harrell's No. 1 Ehrhardt, Ehrhardt & Ketchum Sur. Loc.
H. M. Harrell's No. 1 Graves, C. Walters Sur. Loc.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 21-C Humble-West, Wm. Dobie Sur. T.D. 5,912 ft.
Humble O. & R. Co.'s No. 25-C Humble-West, Wm. Dobie Sur. Drlg. sh. 2,910 ft.

Friendswood—Harris County

Humble O. & R. Co.'s No. 10 Herman Hospital, T. Choate Sur. Drlg. sh. 6,040 ft.

Humble O. & R. Co.'s No. 18 West Prod. Co., L. Hemenway Sur. Drlg. sh. 5,036 ft.

Ganado—Jackson County

Texas Co.'s No. 1 Ross, J. Simon Sur. S.D. 5,108 ft.

Clam Lake—Jefferson County

Shell Oil Co., Inc.'s No. 7 McFaddin, S. A. Pace Sur. T.D. 4,003 ft.; 5½-in. csg. 3,964 ft.; flwg. 8 B.P.D.; ¼-in. ck.

La Belle—Jefferson County

Sun Oil Co. No. 5 Broussard-Hebert, T. &N.O. Sur. No. 207. T.D. 8,710 ft., perf. csg. 8,685-90 ft.; flwd. S.W.; made sqze. job; perf. csg. 8,667-71 ft.; tstd. S.W.; made sqze. job; S.D.

Lovells Lake—Jefferson County

J. H. Blaffer's No. 1 Williams, Wm. Carr Sur. Drlg. sh. 4,220 ft.
Humble O. & R. Co.'s No. 16 Broussard, M. Granger Sur. R.U.
Humble O. & R. Co.'s No. 3-B Steinhagen, A. O. Donnell Sur. T.D. 7,833 ft.; 5½-in. csg. 7,833 ft.
Stanolind O. & G. Co.'s No. 2-A Steinhagen, Wm. Carr Sur. Drlg. sh. 2,666 ft.
Stanolind O. & G. Co.'s No. 2-B Steinhagen, H. O. Donnell Sur. T.D. 7,800 ft.; 5½-in. csg. 7,797 ft.

South China—Jefferson County

Hebert & Smith's No. 1 Guitermann, G. T. Gaylor Sur. 12. R.U.

Esperson—Liberty County

General Crude Oil Co.'s No. 7-B Esperson, A. McNeil Sur. T.D. 7,860 ft.; P.B.
General Crude Oil Co.'s No. 9-B Esperson, A. McNeil Sur. T.D. 7,874 ft.; P.B. 7,400 ft.; W.O.C.

Hull—Liberty County

Gulf Oil Corp. No. 115 Phoenix Dev Co., J. Devore Lge. (SE flank deep test). 9⅝-in. csg. 5,904 ft.; T.D. 7,566 ft.; fsg.

Martha—Liberty County

Pan American Prod. Co.'s No. 1 Hutcheson, Beasley Pruitt Sur. Drlg. sh. 7,212 ft.
Stanolind O. & G. Co.'s No. 2 Flowers, I.&G.N.R.R. Sur. Drk.
Stanolind O. & G. Co.'s No. 1 R. G. Palmer, I.&G.N. Sur. 7. T.D. 8,139 ft.; run elec. survey.
Stanolind O. & G. Co.'s No. 2 Seaberg. T.D. 5,894 ft.; fsg.
Stanolind O. & G. Co.'s No. 1 H. F. Tyrell, I.&G.N. Sur. 7. 10¾-in. csg. 1,214 ft.; T.D. 8,355 ft.; 5½-in. csg. 8,104 ft.

Segno—Polk County

J. K. Dorrance's No. 5-A Wing, I.&G.N. Sur. T.D. 8,130 ft.; tstg.
Gulf Oil Corp. No. 4 Quinn, A. Morales Sur. R.U.
Gulf Oil Corp.'s No. 25 Wing, I.&G.N. Sur. 15. Drlg. sh. 5,120 ft.
Gulf Oil Corp.'s No. 26 Wing, I.&G.N. Sur. 15. Drlg. sdy. sh. 7,836 ft.
Humble O. & R. Co.'s No. 18 BX Kirby Lbr. Co., P. Garcia Sur. Drlg. 7,912 ft.
Jordan Drlg. Co.'s No. 1 E. H. Hughes, I.&G.N. Sur., Sec. 13. Cg. 8,090 ft.

Spurger—Tyler County

Republic Prod. Co.'s No. 28 fee, N. Hurd Sur. R.U.
Republic Prod. Co.'s No. 29 fee, N. Hurd Sur. Drlg. sh. 5,212 ft.

GULF COAST WILDCATS

Brazoria County

Fabriguze et al No. 1 Freeport Sulphur Stephen F. Austin Sur. (Byran Mound) M.I.M.
Hamman Expitn. Co. No. 1-B Darrington, State Prison Farm, F. Bingham Sur. Rig.
D. M. Hill's No. 1 Max Bader, Wm Smeathers Lge. Loc.

LEGAL

The Secretary of the Interior, Washington, November 2, 1939. Advertisement. Call for bids to purchase royalty oil accruing to the United States from the Salt Creek, Wyoming, oil field. Sealed proposals, in duplicate, will be received in the office of the Secretary of the Interior, Washington, D. C., on or before noon, December 1, 1939, from responsible bidders for the purchase, beginning January 1, 1940, of royalty oil accruing to the United States from Government lands in the Salt Creek, Wyoming, oil field. Detailed specifications on quantities offered for sale, required form of bids, deliveries, volume measurements, gravity determinations, bond requirements, and action on bids, should be obtained by prospective bidders from the Director, Geological Survey, United States Department of the Interior, Washington, D. C., the Supervisor, U. S. Geological Survey, Casper, Wyoming, or the Register, U. S. Land Office, Cheyenne, Wyoming. Sealed bids are to be submitted to the Secretary of the Interior, Washington, D. C., pursuant to the specifications, the envelope to be marked plainly "Bid on Salt Creek Royalty Oil—Not to be Opened Before Noon, December 1, 1939." No bid received after the time fixed herein for submitting bids will be considered. (Sgd.) E. K. Burlew, Acting Secretary of the Interior. November 2, 1939.

Humble O. & R. Co.'s No. 1 Hiram Moore, Hooper & Wade Sur., Lot 27. 10¾-in. csg. 2,477 ft.; drlg. sh. 7,412 ft.
Humble O. & R. Co.'s No. 1 A. M. Smith, W. D. C. Hall Sur. Drlg. sh. 8,477 ft.
Glenn McCarthy's No. 1 E. W. K. Andrau, H.T.&B. Sur. 5. 10¾-in. csg. 3,512 ft.; drlg. sh. 8,717 ft.
Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7. 10¾-in. csg. 3,492 ft.; drlg. sh. 8,750 ft.
Mayo & Frazier's No. 1 Darrington, State Prison Farm, A. McFarlan Sur. R.U.
Texas Co.'s No. 8 Freeport Sulphur Co., Ariola Sur. Drlg. sh. 2,315 ft.
Titanic Oil Co.'s No. 1 Allen, J. G. and G. W. McNeel Lge. (Allen dome). Top hvng. sh. 4,830 ft.; 7-in. csg. 5,225 ft.; T.D. 5,230 ft.; abd.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D Smith Sur. Loc.
J. R. Turnbull's No. 2 Kirby Pet. Co., Chambers Co. Sch. Ld. Sur. Loc.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferris H. Chrisman Sur. Loc.

Fort Bend County

H. C. Cockburn's No. 1 G. W. Burkett, Bundieck Sur. Loc.
Gulf Oil Corp.'s No. 1 Russell Brown, Wm. Pettus Sur. 10¾-in. csg. 1,228 ft. cg. sh. 8,160 ft.
H. Link & J. Mayo's No. 1 R. G. Foss, Sec. 63, H.&T.C. Sur. Drlg. sh.&L. 5,339 ft.
Magnolia Pet. Co.'s No. 1 G. H. Huntington, Henry Scott Sur. T. Cckfld. 7,556-60 ft.; drlg. sh.&L. 7,987 ft.
Ray Ranger's No. 1 Sugarland Industries, John Foster 2½ Lge. Loc.
Superior Oil Co.'s No. 1 A. P. George, Wiley Martin Sur. Drlg. sh. 5,518 ft.

Galveston County

Continental Oil Co.'s No. 1 Lobit-Cherardi, Perry & Austin Sur. R.U.
Hebert & Smith's No. 1 J. A. Harris, Edw. Hall & Levi Jones Sur. R.U.

Harris County

Gulf Oil Corp.'s No. 1 H. H. Roberts, A. Roberts Sur. Loc.
L. R. Wilhite et al No. 1 Houston-Harris Co. Ship Channel, Nav. dist., Ezekiel Thomas Sur. 13-in. csg. 388 ft.; T.D. 5,568 ft.; abd.

Jackson County

J. F. Hutchinson et al's No. 1 W. E. Appelt, J. R. Wickham Sur. Drlg. sh. 1,887 ft.

Jefferson County

Merrimac Oil Corp.'s No. 1 State, Tr. 72, 50 ft. due E of Harwell's abd. hole. Driving piling.

Liberty County

Falcon Seaboard Drlg. Co.'s No. 1 Powell, W. V. Vacocy Lge., Lot 6, M.I.M.
Hebert & Smith's No. 1 W. E. Boyt, H. &T.C.R.R. Sur. Loc.

Matagorda County

Gulf Stream Oil Co.'s No. 1 G. W. Ziprian, Luke Lessassier Sur. Drlg. sh. 380 ft.
McDannald Oil Co.'s No. 1 G. W. Shell, B. C. Arthur Sur. Loc.
McDannald Oil Co.'s No. 1 J. L. Woodhouse, Lewis De Moss Sur. T.D. 5,813 ft.; 5½-in. csg. 4,260 ft.
Van M. Vincent's No. 1 J. F. McNabb Est., E. R. Wightman Lge. Loc.

Montgomery County

H. C. Cockburn et al's No. 1 Bender, Montgomery Co. Sch. Ld. and De Crow Sur. Loc.
David B. MacDaniel's No. 1 Hattie O. Baldwin, Walker Co. Sch. Ld. Sur. 10¾-in. csg. 1,230 ft.; drlg. sh. 7,020 ft.; no report; "tight well."
Ralph Sturm et al's No. 2 Foster, Abraham Perehouse Sur. Loc.
T. J. Wood & J. R. Martin's No. 1 H. B. Fultz, Wm. C. Clark Sur. R.U.

Newton County

W. M. Oil Co.'s No. 1 W. A. Smith, Tex. Central R. R. Co., Sur. 2. 10¾-in. csg. 1,220 ft.; drlg. sh. 5,120 ft.

Orange County

American Eagle Oil Co. No. 2 Geo. Pell Geo. A. Patillo Sur. T.A. loc.

Waller County

Hunter & Mayos et al's No. 1 Humble fee, Wm. Hooper Sur. Drk.

Washington County

Mount Selman Oil Co. No. 1 Fritz Fuelberg, W. Lightfoot Sur. Drlg. sh. 4,420 ft.
Sunray Oil Co.'s No. 1 S. E. Lockhart, Gibson Kuykendall Sur. 10¾-in. csg. 1,192 ft.; T.D. 6,250 ft.; fsg.

Wharton County

Frank Campbell et al's No. 1 Harrison & Mitchell, Sec. 21, G.H.&H.R.R. Sur. Loc.
Dr. T. M. Neal No. 1 fee, Elisha Flack Sur. Loc.
Sun Oil Co.'s No. 1 Winnie M. Pool, G. H.&R.R. Sur. S.D. 7,348 ft.; T.A.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 1 St. Charles Co., R. D. Blassman Sur. 18¾-in. csg. 290 ft.; T.D. 8,384 ft.; rmg.

Bastrop County

C. R. Franklin's No. 1 Oscar McDonald, Martha Barker Sur. Drk.
Marts & Beaven's No. 1 J. E. Ferguson, Jas. Doyle Sur. S.D. 1,725 ft.

Bee County

Coronado Corp.'s No. 1 Claude Heard, M.M.&J. Tool Sur. 4-min. D.S.T. 3,257-70 ft.; tstd. 320 lb. W.P.; D.S.T. 4,703-08 ft.; tstd. 430 lb. W.P.; cd. sd. S.O. 5,207 ft.
Mills Bennett Prod. Co.-Anderson-Prichard Oil Corp.'s No. 1 D. E. Robinson, J. M. Uranga Sur. T. Wlx. sd. est. 7,531 ft.; cd. sd.&sh. good O.&G. odor; 14-min. D.S.T. 7,541-51 ft. rec. 15 ft. oil; 245 lb. W.P.; will core 10 ft. and make D.S.T.; 5-min. D.S.T. 7,620-60 ft. tstd. 62 lb. W.P.; rec. 225 ft. gas-cut mud; well tried to blow out at 7,921 ft.; stk. D.S.; fsg.

Bell County

G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. S.D. 1,208 ft.

Bexar County

L. Beauchamp et al's No. 1 J. J. Brown, R. F. Shield Sur. 19. Loc.
Heller Pet. Co.'s No. 1 Wildmann, Juan Sanchez Sur. 34. R.U.
J. A. Tarver's No. 1 Florence Lam, Manuel de Luna Sur. 3. 6⅝-in. csg. 1,205 ft.; T.D. 1,692 ft.; cd. bkn. sh. 1,638-92 ft.; S.S.O.; bailed wtr., S.S.O.

Blanco County

E. L. Nixon's No. 3 Crist, John McClenchen Sur. 94. S.D. 536 ft.

Brooks County

Magnolia Pet. Co.'s No. 1 Vivian Rust, La Gloria townsite subd. Cg. wtr. sd. 6,640 ft.

Burleson County

H. Y. Barnett's No. 1 Giesenschlag, J. W. Hollingsworth Sur. Loc.

Caldwell County

Kean & Williamson's No. 1 E. E. Rector, J. Roberts Sur. S.D. 300 ft.

Calhoun County

Continental Oil Co.'s No. 1 Powderhorn Co., Juan Cano Sur., Sec. 2, Blk. J. Cd. gas sd. 5,819-27 ft.; T.D. 5,901 ft.; 5½-in. csg. 5,901 ft.
Coronado Corp. No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; drlg. 8,610 ft.

De Witt County

Atlantic Ref. Co.'s No. 1 Pearl Conwell, Chas. Lockhart Sur. Loc.
Marshall Purvis No. 1 Afflerback, L. W. Criswell Sur. T.D. 7,608 ft.; abd.

Duval County

J. B. Blanchard's No. 1 E. A. Parr, T. C. Rogers Sur. Drlg. 1,512 ft.
W. L. Catlin et al No. 1 Louis Escapule, J. Poitevent Sur. No. 73. Loc.
Frank Gravis' No. 1 F. Vaello, Robt. Fletcher Sur. Cg. sd. 4,935 ft.
Magnolia Pet. Co.'s No. 2 Duval Co. Rnh. Co., Sur. 300. Drlg. 1,011 ft.
Magnolia Pet. Co.'s No. 2 Well, C.&M. R.R. Sur. 113. Loc.
Mills Bennett Prod. Co. and Stanolind O. & G. Co.'s No. 2-A Ira Yates, E. N. Gray Sur. 224. R.U.
H. D. Rogers' No. 1 Rossen, R. F. Neeley Sur. 48. Drlg. sh. 200 ft.
Rowan & Hope's No. 1 Lopez, M. Lopez Sur. Drlg. sdy. sh. 430 ft.
Taylor Ref. Co.'s No. 1 Parr, E. Garcia Sur. R.U.

Falls County

Shaunfield No. 1 Barganier, J. M. Graham Sur. Bda. L.; S.S.O.; T.D. 1,188 ft.; recmtd. csg.

Frio County

Holland Oil Co.'s No. 1 Anna Witting, Dan T. Price Sur. 6. Loc.

Gonzales County

Continental Oil Co.'s No. 1, J. J. Garlin Sur. Wlx. reported topped 2,960 ft.; drlg. 3,365 ft.
J. A. Walker et al's No. 1 C. L. Dubose, E. C. Coffman Sur. Drlg. 490 ft.

Guadalupe County

Pat Armstrong's No. 1 Ernst Saeti, J. D. Clement Sur. Drlg. 2,190 ft.
Burton-Garvin & Womack's No. 2 Henry Well, E. de Los Santos Coy Sur. No. 93. R.U.
Knute Evjen et al's No. 1 W. C. Brawner, J. D. Pickens Sur. S.D. 2,372 ft.
F. D. Spratt's No. 1 Wm. Zuchi, Claiborne Rector Sur. 38. S.D. 240 ft.
Wellington Oil Co. of Dela.'s No. 1 Wells, H.&T.C.R.R. Sur. 5. R.U.
E. A. Weyel et al's No. 1 H. G. Lentz, Vicente Michelli Sur. 52. T.D. 792 ft., sh.; 3-in. csg. 700 ft.; swbg. 2½ B.O. P.D.; gr. 41.3°.
E. A. Weyel's No. 3 Schaffi K. Bingham Sur. 487. R.U.

Jim Hogg County

W. C. Gray et al's No. 1 Rosa Palacios, G. W. Waddell Sur. S.D. 50 ft.
Humble O. & R. Co.'s No. 2 Mestena O. & G. Co., Francisco gr. T.D. 5,430 ft.; make D.S.T.
Mayfair Oil Corp.'s No. 1 I. R. Gutierrez, C. Gutierrez Sur. 164. T.D. 3,223 ft.; tstg.; 5½-in. csg. 3,217 ft.; swbd. dry; pmpd. 18 B.F.P.D.; tstg.

C. A. Nibert et al's No. 1 Yeager Sur. 20. S.D. 1,316 ft.

Jim Wells County

Austin Pet. Co. No. 1 H. M. Reed (8 mi. NW Orange Grove), J. Poitevent Sur. Cmtd. surf. pipe 190 ft.; S.D. 210 ft.
W. L. Hinds' No. 1 Wm. Adams, T.&N. O.R.R. Sur. 19. R.U.
H. H. Howell et al's No. 1 N. Hinojosa, S.K.&K. Sur., Sec. 229. T.D. 6,531 ft.; abd.
Magnolia Pet. Co.'s No. 1 C. C. Hornsby, Los Olmos y Loma Blanca gr. T.D. 6,435 ft.; D.S. stk.; fsg.
Magnolia Pet. Co.'s No. 1 W. C. Hornsby (La Gloria field). Drlg. sh. 6,940 ft.
Magnolia Pet. Co.'s No. 1 E. H. Stolze et al, Los Olmos y Loma Blanca gr., Lot 16. Blk. 10. Cd. sd.&sh. dist. odor 6,586-6,637 ft.; T.D. 7,347 ft.; P.B. 7,041 ft.; perf. csg. 7,000-10 ft.; tstg. 7-in. csg. 7,024 ft.
A. F. Sears & A. E. McKenzie's No. 1 J. H. McGahee. 10¾-in. csg. 196 ft.
Trinity Drillers et al's No. 1 Temple Lbr. Co., Los Presenos de Arriba gr. T.D. 5,715 ft.; abd.

Karnes County

Clyde Eckols' No. 1 J. M. Newberry, Carlos Martinez Sur. Drlg. sh. 1,736 ft.

Kendall County

C. M. Dewey's No. 2 Seidensticker, R. Davis Sur. No. 20. S.D. 714 ft.

Kimble County

A. L. Bierschwale's No. 1 F. W. Kraeke, Sur. 366. S.D. 424 ft.

Kleberg County

Humble O. & R. Co.'s No. 1 H. Andrews, Rincon De Santa Gertrudis gr. Loc.
Humble O. & R. Co.'s No. 1 J. M. Reed, Rincon De Santa Gertrudis gr. Drlg. sh. 7,229 ft.

La Salle County

John Vivian's No. 1 Louis Yeager, A.B. &M. Sur. 53. Cd. O.S. 699-703 ft.; T.D. 709 ft.; 5½-in. csg. 696 ft. (cor.); swb. S.W.; cg. deeper.

Lee County

Fred Pederson et al No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.; T.D. 6,873 ft.

Live Oak County

L. W. Stieren's No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

Harrison & Ross' No. 1 T. A. Bracken, W. W. Allsberry Sur. 30. T.D. 1,086 ft.; S.D.
Earl W. Rowe's No. 1 M. H. Reed, Seale & Morris Sur. 153. T.D. 1,710 ft.; abd.
C. D. Scarborough No. 1 First Natl. Bk. of Rosebud, Jas. Garner Sur. S.D. 1,515 ft.

Medina County

Elstone Oil Co.'s No. 1 Wm. Mann, J Campbell Sur. 24. 8¼-in. csg. 635 ft.; 7-in. csg. 1,025 ft.; drlg. Georgetown L. 1,665 ft.

Milam County

Alex Krause's No. 1 Graves, Jackson Hall Sur. T.D. 1,527 ft., L.; swbg.
W. H. Lawrence et al's No. 1 J. F. Bartek, Jose De Pena. Sur S.D. 1,210 ft.
Taylor Ref. Co.'s No. 1 Lora Sheppard, Jose Justo Liendo Sur. S.D. 2,011 ft.

Nueces County

John Manley et al No. 1 Ruegg, Geo. H. Pauls subd. of Driscoll ranch. Loc.
Fred Shields' No. 1 J. H. McElroy, M. L. De Herrera gr. Drlg. sh.&sd. 850 ft.
Shield Oil Co.'s No. 1 N. S. Fulton, Nueces River Irrg. Park subd., Lot 8, Blk. 4. Loc.

Refugio County

D. C. Matthews et al's No. 1 L. C. Munzenberger, J. M. Aldrete Sur. R.U.
Norsworthy Prod. Co. No. 1 Wood, John Sinnott Sur. T.D. 6,508 ft. (cor.); S.D.

Starr County

Clopton, Mitchell et al's No. 1 F. W. Seabury, J. A. Falcon, Porc. 80. 8¼-in. csg. 88 ft.; T.D. 2,665 ft.; S.D.
C. L. Foster's No. 1 H. Garza, Juan Salinas, Porc. No. 71. S.D. 100 ft.
W. E. Gilbert's No. 1 Escobas, Jose F. Garza, Porc. 71. S.D. 330 ft.
Lynes & Robertson's No. 1 Villareal, C. C.S.D.&R.G.N.G.R.R. Sur. 241. Loc.
Magnolia Pet. Co.'s No. 2 Yzaquirre, La Sal Colorado gr. R.U.
Warner & Mitchell's No. 1 B. L. Chapman, Juan B. Villareal Sur., Porc. 75. T.D. 851 ft.; abd.

Travis County

J. H. Gray's No. 1 Washington, Jose Antonio Navarro Sur. R.U.

Victoria County

Barnsdall Oil Co.'s No. 1-A Keeran, M. De Leon Sur. Drlg. sh. 5,634 ft.
W. S. Boyle's No. 1 P. C. Meyer, Victoria townsite Sur., Blk. 3. R.U.
Renwar Oil Corp.'s No. 1 M. L. Stoner, Diego Garcia Sur. T.D. 6,015 ft., sd., O.S. 4,281-83 ft.
Stewart Boyle's No. 1 Simon, Victoria Four Lge. T.D. 2,907 ft.; 5½-in. csg. 2,700 ft.; perf. csg. 2,550-58 ft.; comp.; gas well.
Wellington Oil Co. et al's No. 1 J. W. Boothe, T.&N.O. Sur., Blk. I, Sec. 10. T.D. 9,118 ft.; abd.

Webb County

O. W. Killam's No. 2 fee, Blk. 16, Sur. 1859. Cg. sd. 1,491 ft.
O. W. Killam's No. 6 fee, H.E.&W.T.R. R. Sur. 1859. T.D. 1,339 ft.; make D. S.T.
W. C. McBride, Inc.'s No. 2 Vela, G.C.& S.F.R.R. Sur. 263. T.D. 1,809 ft.; abd.
Mayfair Oil Corp.'s No. 3 Brunl, J. V. Borego gr. Drk.
Geo. Noble's No. 1 Row & Bonham, D. F. Felps Sur. 1698. Loc.
Tide Water Asso. Oil Co. No. 7 Brunl Blk. 7, M. Arispe gr. (deep test Brr field). T.D. 8,959 ft.; well blew out; hole bridged; stk. D.S.

Williamson County

Jackson & Zizinia's No. 1 H. B. Land, P. Coursey Sur. Drlg. sh. 403 ft.
H. C. Lefors' No. 1 H. J. Priesmeyer, Jehu Bevil Sur. 56. Drlg. sh. 836 ft.

Zapata County

J. P. Martin et al's No. 1 Serapio Vela El Grullo gt. Drlg. sh.&sd. 1,072 ft.
Neilson & Wise's No. 1 Maryland Tr. Co., J. H. Vermilion Sur. 314. T.D. 2,-314 ft.; 5½-in. csg. 1,816 ft.

WEST TEXAS WILDCATS

Brewster County

H. D. Wilcox's No. 2 Kokernot, Sec. 23, Blk. C, J. V. Massey Sur. S.D.O. 1,610 ft.

Cochran County

Atlantic Ref. Co.'s No. 1 Boyd, Labor 11, Lge. 56, Oldham C.S.L. T.D. 5,040 ft.; flwd. 827 bbl. daily.
Dean & Hyde's No. 1 Reed & Taylor, Sec. 21, Harrison & Brown Sur., SE of Duggan pool. Prep. abd. 5,106 ft.

Crane County

Gulf Oil Corp. No. 5 M. B. McKnight Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. out 5,566 ft.
Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft.; drlg. 1,740 ft.

Crockett County

Commercial O. & G. Co.'s No. 1 O. W. Parker, Sec. 83, Blk. 1, I.&G.N. Sur. S.D.R. 485 ft.
Continental Oil Co.'s No. 1 Todd Unit, SW¼ Sec. 30, Blk. W.X., C.G.S.F. Sur.; Ordovician test. Topped Simp. at 6,040 ft.; show dead oil; swbg. and tstg. 6,-292 ft.
Kimberlin's No. 1 J. W. Robbins, Sec. 4 Blk. B, G.C.&S.F. Sur. Drlg. 1,565 ft.
Moore Bros.' No. 1 Henderson, Sec. 51, Blk. O.P., G.C.S.F. Sur. Drlg. 655 ft.

Crosby County

Gulf Oil Corp. No. 1-C Swenson, Sec. 9 Blk. 2, H.&G.N. Sur. S.D.O. 8,414 ft.

Dawson County

Ray Albaugh's No. 1 Dewey Hogg (O. W.D.D.). S.D.O. 4,222 ft.

Ector County

I. T. I. O.'s No. 1-B Johnson, Sec. 39, Blk. 43, T.&P. Sur. S.S.O. 4,100-08 ft. and 4,132-38 ft.; P.B. 4,178 ft.; flwd. 142 B.O.P.D.; C.O. 4,185 ft.; after shot from 4,081-4,169 ft.; taking test 4,185 ft.
Landreth Prod. Corp. and Shell Oil Co., Inc.'s No. 1 J. L. Johnson, Sec. 43, Blk. 43, Twp. 1s, T.&P. Sur. Drlg. 1,570 ft.

Gaines County

Stanolind O. & G. Co.'s No. 1 American Warehouse, Sec. 5, D.&W. Sur., offset to No. 1 Rayner, discovery well. Drlg. 4,540 ft.
Stanolind O. & G. Co.'s No. 1 T. S. Riley, Sec. 11, Blk. H, D.&W. Sur. Drlg. 3,-120 ft.

Hockley County

Geo. P. Livermore's No. 1 R. D. Glimp, Sec. 8, Blk. X, P.S.L. Sur. R.U.R. 200 ft.

Loving County

J. E. Whitesides' No. 1 fee, Sec. 24, Blk. 76. Loc.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co. Sec. 151, H.E.W.T. Sur. Drld. out 3, 570 ft.; S.D.O.

Pecos County

B. McCandless and General Crude Oil Co.'s No. 1 Virginia W. Crockett, Sec. 5, Blk. 110, T.C.R.R. Sur. Drlg. 1,598 ft.
Stanley Thompson No. 1 Elsinore Cattle Co., Sec. 54, Blk. D, G.C.&S.F. Sur. Drld. by 7,073 ft.; 500 ft. S.W. in hole; S.D.O. 7,342 ft.
Superior Oil Co. No. 1 V. W. Crockett-Continental Oil Co., Sec. 7, Blk. 110 T.C.R.R. Sur. C.&P.
H. C. Walker's No. 1 Alva Reed, Sec. 20, Blk. 10, H.&G.N. Sur. S.D. 63 ft.

Reeves County

T.A.T. Oil Co.'s No. 1 U. G. Orenderff, Sec. 10, Blk. 59, P.S.L. Sur. Lowering 12-in. at 268 ft.

Scurry County

Coffield & Guthrie's No. 1 Reiter, Sec 155, Blk. 97, A.T.&T.C. Sur. S.D.R. 2,415 ft.

Terrell County

E. M. Thomasson No. 1 Bates, Sec. 31, Blk. 1, H.&G.N. Sur. S.D.O. 1,560 ft.

Tom Green County

Johnson's No. 2 Rape, Sec. 2, Blk. 18, H.&T.C. Sur. S.D.O. 339 ft.
Dan Short's No. 1 J. G. Davidson, NW part of Lovie P. Moore Sur.; 3,500-ft test. S.D.R. 2,667 ft.; S.S.O.&G. 2,660-65 ft.

Ward County

Gulf Oil Corp. No. 5 Wristen, Sec. 18, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Drlg. out with rotary 2,525 ft.
Magnolia Pet. Co.'s No. 2-43 Sealy, Sec 43, Blk. F, G.M.M.B.&A. Sur. W.O. 2,-952 ft., T.D.; making 69,000,000 cu. ft. gas; incr. amt. oil; prep. to D.D.; cg. 2,980 ft.; (perfs. in lnr. cmtd. off); W. O.C. 4-in. lnr.
Merry Bros. & Perini's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur. S.D.R. 350 ft.

Yoakum County

Sloan & Zook and T. N. Sloan's No. 1 J. E. Fitzgerald, Sec. 22, Blk. D, Gibson Sur., extreme NE cor. of county. Rng. 7-in. csg. 4,843 ft.

TEXAS PANHANDLE

Deaf Smith County

Ucan No. 1 Farwell, Sec. 18, Blk. 3, X Sur. C.O. 5,650 ft.

Hartley County

Phillips Pet. Co. No. 1 W. K. Gordon, Sec. 3, Blk. 44, H.&T.C. Sur. showed 34,300,000 cu. ft. gas below 3,415 ft.; P.B. for gas well 3,415 ft.; tstg.

Lipscomb County

Phil O'Neil's No. 1 Jacob Koch, NW¼ SW¼ Sec. 539, T.&T.C.R.R. Sur. S.D. 1,100 ft.

Ochiltree County

James R. Macon et al No. 1 W. R. Norris SW SE Sec. 212, Blk. 43, H.&T.C. Sur. Bailing rotary fluid preparatory to resuming drlg. with C.T.; T.D. 6,274 ft. prep. acd. and test sec. at 5,000 ft.; est. 6,000,000 cu. ft. gas on D.S.T.; tstg.; bailing 6,274 ft.

Potter County

Lee Whitaker No. 1 D. Pavillard, Sec 101, Blk. 2, A.B.&M. Sur. Fish out; S.D. 915 ft., csg.

Sherman County

Hagy, Harrington & Marsh's No. 1 W. Freeman, Sec. 46, Blk. 2, G.H.&H. Sur. Drlg. 3,196 ft.
I.T.I.O.'s No. 1 S. C. Bryant, NW¼ Sec. 369, Blk. 1-T, T.&N.O. Sur. Drlg. 1,-475 ft.

E. C. TEXAS WILDCATS

Anderson County

A. Baggett's No. 1 J. R. Gillispie, J. R. Ferguson Sur., 2½ mi. NE of Frankston. S.D. 4,350 ft.
R. H. Williamson No. 1 O. G. Rogers Wm. Greenwood Sur., 6 mi. SW of Elkhart. Drlg. 5,149 ft.

Angelina County

Ginter Bros. No. 7 Copes Hrs., J. Morris Sur., 3 mi. E of Diboll. S.D. 800 ft.
K. L. McHenry's No. 2 Russell est., A. Flores Sur., 4 mi. N Lufkin. Prep. rng. csg. topped sd. 1,002 ft. 2 B.O. and 4 B.W. in 5 min.; pmp. 16 B.O. and 34 B.W.P.D.; S.I. 1,004½ ft.

Falls County

R. D. Salisbury No. 1 W. M. Shankle, J. A. Manchaca Sur., 1½ mi. NE Chilton S.D. 1,274 ft.

Fannin County

H. W. English's No. 1 T. W. Ayers, J. D. Seales Sur. S.D. 687 ft.
C. Newburn's No. 1 A. G. Allen, M. Caldwell Sur., 7 mi. NE of Banham. Laying wtr. lines.

Hill County

Carter-Bowland's No. 1 J. J. Atchison estate, E. Carrol Sur., 5 mi. W of Hillsboro. S.D. 85 ft.

Houston County

J. C. Cook and Shell Oil Co.'s No. 1 B. T. Masters, Levina Carpenter Sur., ½ mi. NW of Grapeland pool; 10,000-ft. test. C.O. 6,060 ft.; flwg. 1 B.O. and considerable gas; S.I. 6,060 ft.
J. C. Wynne et al's (Shell Oil Co., Inc.) No. 1 G. E. Dorsey, M. Sallas Sur. 2½ mi. S of Percilla; E 102 ac. of tr.; 10,000-ft. test. U.R. 6,768 ft.; prep. set csg.; W.O.C. 6,735 ft.

Hunt County

Westmount Oil Co.'s No. 1 Clark, W. H. Williams Sur., 1 mi. NW of Celeste. Drlg. 4,950 ft.

Leon County

Lone Star Gasoline Co.'s No. 2 A. Jones, J. M. H. Jones Sur., Buffalo gas area. Drlg. 4,110 ft.

Limestone County

Peyton Bros.' No. 1 Harris, P. Varella Sur. Setting whpstk. 4,495 ft.
M. Samuel's No. 1 C. Barrow, W. G. McKinsey Sur., 4 mi. NW of Thornton. Tstg. 2,000,000 cu. ft. gas and white dist. at 5,505-5,603 ft. in Tr. Pk. tstg. 32 bbl. dist. daily.
J. J. Tyrell's No. 1 A. G. Easterling, J. L. Chavert Sur., 11 mi. E of Groesbeck. S.D.R. 1,050 ft.

Nacogdoches County

C. W. Burnaman's No. 1 W. L. Burnaman, H. Hamby Sur., ½ mi. SW of Etoyle. Loc.

Navarro County

J. H. Burke's No. 1 fee, Edmonson Sur., 1 mi. N of Powell. P.B. 680 ft.; S.D.
E. Carter's No. 1 Allen Eden, M. Shire Sur., 2 mi. NE of Angus. Swbg. 1,201 ft.

Rusk County

Jeff Bolton's No. 1 Hall Wood, J. I. Sanches Sur., 2½ mi. NW of New Salem. M.I.M.
Marietta Corp.'s No. 1 E. B. Alford, Thos. Howeth Sur., 1 mi. S of Pinehill. R.U.
A. O. Whittington's No. 1 Langerga Bros., ign. Castro Sur., 9½ mi. N and slightly E of Pirtle. Bldg. drk.

Red River County

Dave Flesch's No. 1 Bailey, J. Robbins Sur., 1 mi. W of Bagwell. S.D. 3,415 ft.
Kansas-Oklahoma Pet. Corp. No. 1 R. H. Ringwald, A. Moore Sur., 3 mi. W of Manchester. S.D. 1,000 ft.

Smith County

Shell Oil Co., Inc.'s No. 1 H. Campbell, P. Lively Sur., 1½ mi. N of Chapel; 9,500-ft. test. Drlg. 5,543 ft.; T. Paluxy 5,533 ft.

Trinity County

Gossage et al's No. 1 First Natl. Bnk., B. F. Wright Sur., S of Trinity. R.U. and S.D.

NORTH TEXAS WILDCATS

Archer County

L. T. Burns' No. 1 J. Penartz, Sec. 19, Clark & Plumb Sur., Blk. 4. Drlg. 2,875 ft.
L. B. Burns' No. 1 H. Wilmut, Lot 13, G.N. Smith Sur., Abst. 393 (4,400-ft. semiwildcat). Flwd. 150 B.O. in 3 hrs., 4,376-96 ft.; showed S.W.; P.B. 4,384 ft.; W.O.C.
W. B. Hamilton's No. 5 C. E. Graham, J. D. Young Sur. A-1249. 6⅝-in. 5,205 ft.; P.B. 4,930 ft.; perf. csg. 4,750-70 ft.; treated 1,000 gal.; tstg.
Waldo E. Stephens et al's No. 1 Hattie B. Adae, SE part of Blk. 7, Palo Pinto Co. Sch. Lds., 3 mi. SE of Griffin pool. Set 10-in. 100 ft.; drlg. 4,218 ft.

Clay County

L. T. Burns No. 1 J. T. Pickett, W. W. Yearly A-745. 6⅝-in. 4,430 ft.; O.S. 4,-430-44 ft.; P.B. 4,380 ft.; drld. out to 4,450 ft.; pmpg. est. 20 B.O. and 15 B.W. daily.
Continental Oil Co. et al's No. 1 O. O. Ross, W. Walker Sur. A-703. Set 158 ft. 10-in.; cg. oil in lime 5,350-5,400 ft.; cmtg. csg. for test.
Frabor-Hodges and Sinclair Prairie Oil Co.'s No. 1 Scaling, G. P. Meade Sur., Abst. 928. Drlg. 3,975 ft.

Cooke County

Big Indian Oil Dev. Co.'s No. 1 M. P. Morton, SW cor. Sec. 1, E.T.R.R. Sur., Abst. 365. Loc.
Heydrick et al's No. 1 W. Franklin, A. Rodiquez Sur., Abst. 851. Spd. and S.D.

Cottle County

J. E. Burns et al No. 1 J. E. Moss, Sec. 5, Blk. L, A. Forsythe Sur. Jnkd. 225 ft.; skd. 20 ft. S; S.D. 1,823 ft.

Denton County

Jones Drlg. Co.'s No. 1 H. K. Armstrong, L. Moore Sur., Abst. 824. Drlg. 1,410 ft.

Foard County

Foster Pet. Corp.'s No. 1 E. M. Gamble, 4,500-ft. test; E. 180 ac. of S½ Sec. 13, Block A, H.&T.C. Sur. Loc.

Grayson County

Ross & Marshall's No. 2 E. Christman, M. Ahuit Sur., 5 mi. NW of Denison. S.D. 852 ft.; S.S.O.
Rutledge Oil Co.'s No. 1 Williams, S. Nix Sur., 2 mi. NE Van Alystine. Drlg. 5,342 ft.

Hardeman County

Carter & Taylor's No. 1 Norton, NW cor. 91-ac. tr. in Blk. 3, Robt. Young Sur., 16 mi. N of Quanah. S.D. 256 ft.

Jack County

J. B. Cooper and Paul P. Steed's No. 1 Mathis, J. H. Nesmith Sur., Abst. 1562. Loc.
Harper Pet. Corp. No. 2 S. V. Vanhooser, Abst. 1926, J. W. Morrow Sur. T.D. 2,030 ft.; S.D.O.
Jim Lanning's No. 1 A. T. Smith, NE cor. Sec. 2, S.P.R.R. Sur., Abst. 2175. R.U.R.
Pitzer & West's No. 1 Sloan, Sec. 2786, T.E.&L. Sur. Rng. 8-in.; cg. dry sd. 2,770-80 ft.; S.D.O.

Montague County

W. H. Gant and Continental's No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. Drlg. 6,572 ft.

Wichita County

Bridwell Oil Co.'s No. 1 Fred L. Cone, SE cor. J. M. Sharp Sur., Abst., 262. Loc.

Wilbarger County

Rogers & Cavin No. 1 A. P. Morris, Sec. 3, Blk. 14, SW of Harrold. S.D. 2,378 ft.; wtr.

Wise County

W. F. Holifield et al's No. 1 J. Redell, Rebecca Coleman Sur., Abst. 155, 2 mi. E of Bridgeport. Moved off spdr.
H. M. Muse No. 1 F. F. Kaker, Blk. 16, Matagorda Co. Sch. Ld. Pits.

Young County

Burns Oil Co. (Floyd Scott) No. 1 W. J. Rhoades, SW B. F. Kutch Sur. Abst. 1333. Drlg. 1,160 ft.
Cosden Pet. Corp.'s No. 1 W. E. Steele est., NE part of R. M. Burton Sur., Abst. 8, 7 mi. SE Graham. 4,200-ft. test. Drlg. 1,930 ft.
H. W. Dyer's No. 1 M. G. Cheney, M. L. Terry Sur., Abst. 1261. Drlg.
L. A. Long's No. 1 J. S. Williams, 3,000-ft. test in NE part of S. H. James Sur., Abst. 1465. Loc.
K. R. March's No. 1 Ed. Burton, NE cor. Blk. 99, J. A. True Sur., Abst. 1640, 4 mi. SE Graham, 4,250-ft. test. Drlg. 800 ft.
A. T. Strong et al's No. 1 E. C. Stovall, Sec. 2946, T.E.&L. Sur. (4,800-ft. test). Drlg. 1,320 ft.
Taubert & McKee Drlg. Co.'s No. 1 Shanafelt, P. Pointevent Sur., Abst. 1309. 6⅝-in. 4,012 ft.; treating 2,000 gal. acd. 4,437-4,500 ft.; P.B.; H.F.W. 4,398-4,410 ft.; S.D.

EAST TEXAS

(Border Counties)

Marion County—Other

R. W. Cosby's No. 1 Decker, 150 ft. cor. 33-ac. tr. Set 10-in. csg. 100 ft.; S.D. 250 ft.
M. D. Fitzwater No. 1 Mrs. Mary Duncan, Jesse Fitzgerald Sur. T.D. 2,558 ft.; flwbd. and bailed dry; tstg.
J. D. Reynolds' No. 5 Terry est., W. Coore Sur. T.D. 2,359 ft.; W.O.S.R.
J. D. Reynold's No. 3-B Terry est., 660 ft. EL, 2,250 ft. SL, W. Coore Sur. T.D. 2,025 ft.; S.D.
Sutton et al's No. 1 W. Taylor, 450 ft. EL, midway N and SL, B.B.B.&C.R.R. A-54 Sur. Set 6-in. csg. 2,289 ft.; T.D. 2,313 ft.; pulled lnr.; swbd. dry; S.D.

Marion County—Rodessa

Tippett Drlg. Co.'s No. 2 Howard, 540 ft. NL, 933 ft. SW No. 1, John Hanks Sur. Drlg. sh.&L. 3,685 ft.

Shelby County

W. H. Neel et al's No. 1 J. W. Hanson, C 64-ac. tr., A. Sanford Sur. M.I.M.

WEST CENTRAL TEXAS DISTRICT

Brown County

A. D. Bruce's No. 1 L. S. Mauldin, SW¼ Sec. 15, H.T.&B. Sur., Abst. 464. C.O. 1,691 ft.; tools out.
Kynaston & Cullison's No. 1 L. A. Hill, SW¼ Sec. 35, H.T.&B. Sur. S.D. 1,000 ft.
Plains Prod. Co.'s No. 1 Hill, SE cor. W 123 ac. of M. Mudgett Sur. 63. S.D.O. 1,120 ft.
Wilson Oil Co., Inc., No. 1 M. Bowden, Sec. 138, W. E. Gilliland Sur. S.D.O. 2,100 ft.

Coleman County

B. Banner's No. 1 R. R. Powell, NW part of Moses Little Sur. 40. S.D.O. 1,350 ft.
Kynaston-Culberson-Culberson & Bossman No. 1 J. P. McCord, Sec. 159, J. W. Meeks Sur. S.D.O. 2,300 ft.
States Oil Corp.'s No. 1 J. P. Morris, SE part of J. P. Stone Sur. 6. Top sat. sd. 3,591 ft.; cmtd. csg.; prep. drill in.

Concho County

Natural Resources Corp. No. 1 Armor, Sec. 105, Blk. 72, T.&N.O. Sur. S.D.O. 1,216 ft.

Coryell County

W. E. Crews' No. 1 S. C. Blanchard, W part of Wm. H. King Sur., 2 mi. SW of Mound, 5,000-ft. test. Loc.

Eastland County

Dobbs Oil Corp.'s No. 1 Pierce, 330 ft. SL and 330 ft. EL of 214-ac. tract in Sec. 35, Blk. 2, H.&T.C. Sur. Drlg. 2,-632 ft.
R. R. Groce's No. 1 J. M. Rush, Sec. 139, Blk. 3, H.&T.C. Sur. S.D.O. 1,728 ft.
F. S. Holden's No. 1 J. F. Nichols, L. A. McDonals Sur., Abst. 829. Drlg. 1,509 ft.
Lone Star Gas Co.'s No. 1 F. J. Kimmel Sec. 87, Blk. 4, H.&T.C.R.R. Sur. Drlg. 3,465 ft.
J. L. Reeves No. 1 J. V. Parker, NW part of Wm. Van Norman Sur. Fag. 3,077 ft.; S.S.O. 3,019-41 ft.; S.D.O. 3,-077 ft.
W. A. Stiles et al's No. 1 H. F. Duncan, Sec. 10, Blk. 2, H.&T.C.R.R. Sur. Pits.

Erath County

Wayne Chandler's No. 1 Chandler, J. W. Moore Sur., Abst. 571. Prep abd. 5,126 ft.
T. Gray's No. 1 C. Young Hrs., NW cor.

of Stephen Smith Sur., Abst. 682 S.D.O. 89 ft.

T. G. Jackson No. 1 J. W. Taylor, Prater Sur., Abst. 1029, 4 mi. NE of Desdemona. S.D. csg. 2,400 ft.

J. F. Morissey et al's No. 1 R. J. Sikes, J. Hargrave Sur., 6 mi. N of Stephenville; 5,000-ft. test. S.D.O. 330 ft.

Fisher County

S. and D. Daube's No. 2 Bennett, NE¼ Sec. 51, Blk. 2, H.&T.C. Sur. Drlg. 3,755 ft.

Hamilton County

Wallace & Vickers' No. 1 C. C. Lund, J P. Bailey Sur. 51. S.D.O. 3,453 ft.

Haskell County

K. N. Nowels' No. 1 M. S. Pardue, SW cor. Sec. 1, S.F.I.W. Sur., 4½ mi. east Stamford. Spdg.

Jones County

Butler & Horne's No. 1 J. C. Thompson, Sec. 48, Blk. 18, T.&P. Sur. Fsg. 100 ft.

Danciger O. & R. Co.'s No. 1 B. P. Davenport, NE¼ Sec. 23, D.D.&A. Sur Drlg. 2,830 ft.

Fain-McGaha Oil Corp.'s No. 1 L. T. Burns, S½ SE¼ Sec. 38, Blk. 15, T.&P. Sur. S.D. 1,944 ft.

Healey & Walters' No. 1 Warren, D. P. Rowland Sur. Dry and abd. 3,474 ft.

Keeler's No. 1 Radford, SE¼ Sec. 20, Blk. 4, H.&T.C.R.R. Sur. S.D.O. 1,800 ft.

L. H. Pearson's No. 1 P. V. Nelson, SE¼ Sec. 186, B.B.B.&C. Sur. Loc.

Ungren & Frazier and Hedrick Oil Co.'s No. 1 H. F. Lewis, NW cor. Sec. 6 Subd. 7, W. C. Walker Sur. Prep. abd. 1,980 ft.

Johnson County

Geo. C. Foster's No. 1 Pennington, C W 40 ac. of J. E. Pennington's 247-ac. tr., ½ mi. SW of Cleburne; contract depth 3,500 ft. Loc.

Mills County

A. W. Tanner's No. 1 M. J. Ivy, M. Rhyne Sur., 2 mi. SW of Ebony; contract depth 1,450 ft. Loc.

Nolan County

Green & Owens' No. 1 Tipton, Sec. 43 Blk. 19, T.&P. Sur. Sat. from 5,135-38 ft.; 116 B.O. in 2 hrs.; est. 450 B.O P.D.; tstg. S.W. 5,170 ft.

Plymouth Oil Co. No. 1 F. M. McClure Sec. 49, Blk. 23, T.&P. Sur., 8,000-ft test. Drlg. 5,280 ft.

Palo Pinto County

J. Jones' No. 1 R. H. Gauldin, NW cor Sec. 1743, T.E.&L. Sur. Drlg. 710 ft.

Palo Pinto O. & G. Co.'s No. 1 F. A. Johnson, Sec. 61, Burleson Co. Sch. Lds. Csg. 900 ft.; W.O.C.

Parker County

Brown & Gardner Bros. No. 1 Gilbert T.&P. Sur., Abst. 1958. Drlg. 3,891 ft.

Shackelford County

Georgian Oil Corp.'s No. 1 Black ranch C NE¼ of T.E.&L. Sur. No. 390, 10 miles NE of Albany, Ordovician test Drlg. 1,550 ft.

Jones-Stasney & Groover-Rose's No. 1 Winnie Wentz, Sec. 13, Blk. 3, H.& T.C. Sur. Spdg.

C. R. Schuster's No. 1 L. E. DeWitt, Blk 58, Univ. Lds. S.D. 3,040 ft.; wtr.

Stephens County

Geo. E. Fagg No. 1 Richardson, Sec. 6 Blk. 31, S.P.R.R. Sur.; 4,000-ft. test S.O. 3,430-45 ft.; S.D.O. 3,473 ft.; H. F.W.

Pitzer & West and Brazos-Young Oil Corp.'s No. 2-B N. G. Price, SE cor. E½ SW¼ Sec. 67, B.A.L. Sur. Rng. csg. 3,976 ft.; est. 1,000,000 to 2,000,000 cut. ft. gas in L. 3,970-76 ft. Prep. comp.

T. G. Shaw, Tr.'s No. 1 S. P. Stroud NW¼ of G. Newton Sur., Abst. 128 Sd. 2,597-2,600 ft.; tstg. 68 bbl. oil in 11 hrs.; tstg. 2,662 ft.; prep. comp.

Wittmer O. & G. Co.'s No. 2 B. D. Loving, NE¼ Sec. 11, O.A.L. Sur. Making 7,500,000 cu. ft. gas, sd. 2,260-62 ft.

Stonewall County

Shell Oil Co., Inc., No. 1 A. E. Smith Sec. 143, Blk. 1, H.&T.C. Sur.; 6,00 ft. test. Drlg. 3,294 ft.

CALIFORNIA OPERATIONS FOR SEPTEMBER, 1939

According to figures collected by the American Petroleum Institute, the total production of crude oil in California for September amounted to 18,462,923 bbl., an average of 615,431 bbl. per day. This is an increase of 4,645 bbl. per day over August production.

Total stocks of crude and all products in Pacific Coast territory decreased during the month 1,924,973 bbl. The total stocks at the end of the month were 154,658,809 bbl. The total stock decrease for 1939, up to September 30, was 3,025,480 bbl.

Seventy-two wells were completed during the month with an initial daily production of 49,726 bbl., compared with 81 wells completed during August, with an initial production of 84,906 bbl.

CRUDE PETROLEUM PRODUCTION

	Total Production	Daily average		
Group No. 1:	September	Sept., 1939	Aug., 1939	Sept., 1938
Arvin	64,897	2,163	1,733	.....
Belridge—North	354,471	11,816	12,200	12,553
Belridge—South	34,018	1,134	1,240	1,119
Canfield Ranch	2,410	80	90	98
Coalinga	614,573	20,486	20,284	10,940
Canal	169,768	5,659	5,729	2,854
Cole's Levee	52,167	1,739	1,194	.....
Edison	63,994	2,133	2,207	2,555
Elk Hills	310,487	10,350	10,447	10,411
Fruitvale	189,130	6,304	6,203	7,743
Greeley	68,929	2,298	2,275	3,000
Kern River	358,758	11,958	11,764	12,031
Kettleman Middle Dome	849	28	26	40
Kettleman North Dome	1,567,893	52,263	52,219	63,468
Lost Hills	107,172	3,572	3,411	3,482
McKittrick	111,220	3,707	3,793	3,362
Midway-Sunset	1,471,169	49,039	49,724	57,331
Mountain View	237,452	7,915	8,101	9,695
Mount Poso	329,271	10,976	10,674	14,811
Paloma	4,975	166	8	.....
Rio Bravo	229,758	7,659	7,835	8,152
Round Mountain	255,269	8,509	8,569	13,516
Strand	19,699	657	340	.....
Ten Section	271,433	9,048	9,398	8,218
Tupman	17,499	583	499	.....
Wasco	45,786	1,526	1,355	377
Wheeler Ridge	9,906	330	323	310
Group No. 2:				
Capitan	66,907	2,230	2,339	2,897
Elwood	123,585	4,120	4,155	5,236
Rincon	104,604	3,487	2,630	3,515
San Miguelito	86,153	2,872	2,779	2,295
Santa Barbara	8,223	274	268	380
Santa Maria	558,077	18,602	16,315	19,580
Summerland	651	22	27	32
Ventura Avenue	1,048,706	34,957	35,579	34,237
Ventura-Newhall	206,312	6,877	7,034	5,313
Watsonville	900	30	30	30
Group No. 3:				
Brea-Olinda	171,652	5,722	5,725	5,598
Coyote—East	78,767	2,626	2,665	3,289
Coyote—West	279,332	9,311	9,133	8,105
Dominguez	544,490	18,150	17,868	25,059
El Segundo	87,372	2,912	2,980	6,499
Huntington Beach	786,881	26,229	25,475	31,208
Inglewood	372,820	12,427	12,566	13,752
Lawnwood	1,001	33	45	64
Long Beach	1,349,266	44,976	45,215	55,964
Los Angeles-Salt Lake	16,236	541	572	570
Montebello	771,769	25,726	23,350	12,394
Playa Del Rey	140,398	4,680	4,722	5,727
Potrero	36,411	1,214	1,244	678
Richfield	261,703	8,723	8,751	8,820
Rosecrans	312,270	10,409	10,627	14,248
Santa Fe Springs	810,610	27,020	27,238	31,536
Seal Beach	213,140	7,105	7,115	8,118
Torrance	452,355	15,079	15,933	19,542
Whittier	26,848	895	932	957
Wilmington	2,582,531	86,084	85,833	92,356
Total	18,462,923	615,431	610,786	664,065
August	18,934,353	610,786		
Increase	*471,430	4,645		

*Decrease.

OIL FIELD DEVELOPMENT

	New rigs up	Active drilling	Producers completed	Daily initial output	Active producing	Abd. wells—Drillers	Abd. wells—Producers
Group No. 1:							
Arvin	1	3	...	.....	10	...	...
Belridge—North	...	3	...	.....	72	...	...
Belridge—South	...	...	...	.....	84	...	...
Canal	2	2	1	1,284	28	...	...
Canfield Ranch	...	...	...	.....	1	...	...
Coalinga	10	9	7	13,218	880	...	...
Cole's Levee	1	9	...	.....	7	...	...
Edison	...	1	1	60	88	...	1
Elk Hills	...	...	...	.....	169	...	...
Fruitvale	...	1	1	80	174	...	...
Greeley	...	3	...	.....	21	...	...
Kern River	7	7	3	26	1,501	...	...
Kettleman Middle Dome	...	...	...	.....	3	...	...
Kettleman North Dome	6	15	2	2,249	229	...	...
Lost Hills	...	...	...	.....	287	...	...
McKittrick	1	...	...	.....	203	...	...
Midway-Sunset	2	5	3	373	2,576	...	...
Mountain View	1	1	1	120	187	...	1
Mount Poso	3	2	2	195	270	1	...
Paloma	2	...	...	.....	1	...	...
Rio Bravo	2	2	1	3,200	34	...	...
Round Mountain	1	2	3	753	204	1	...
Strand	2	2	1	3,478	3	...	...
Ten Section	1	1	...	.....	28	...	...
Tupman	1	1	1	148	3	...	...
Wasco	...	...	...	.....	7	...	...
Wheeler Ridge	...	...	...	.....	33	...	...
Group No. 2:							
Capitan	...	...	...	.....	44	...	...
Elwood	...	...	...	.....	80	...	...
Rincon	1	1	...	.....	53	...	...
San Miguelito	1	2	...	.....	21	...	...
Santa Barbara	...	1	...	.....	26	...	2
Santa Maria	2	2	2	1,189	265	...	1
Summerland	...	...	...	.....	17	...	...
Ventura Avenue	4	13	3	1,191	266	...	...
Ventura-Newhall	4	7	2	879	554	...	1
Watsonville	...	...	...	.....	7	...	...
Group No. 3:							
Brea-Olinda	...	...	...	.....	358	...	...
Coyote—East	...	1	...	.....	76	1	...
Coyote—West	...	...	...	.....	67	...	...
Dominguez	1	2	3	2,497	167	...	...
El Segundo	...	...	...	.....	49	...	...
Huntington Beach	2	3	1	300	531	...	3
Inglewood	...	...	...	.....	213	...	...
Lawndale	...	...	...	.....	5	...	...
Long Beach	1	4	...	.....	1,193	...	...
Los Angeles-Salt Lake	...	...	...	.....	111	...	...
Montebello	15	39	20	13,340	292	...	...
Playa Del Rey	...	...	...	.....	168	1	...
Potrero	...	...	1	125	15	...	...
Richland	...	1	...	.....	292	...	1
Rosecrans	1	2	1	250	138	1	...
Santa Fe Springs	...	...	...	.....	568	...	2
Seal Beach	...	...	...	.....	110	...	...
Torrance	1	1	...	.....	713	1	1
Whittier	...	...	...	.....	145	...	...
Wilmington	10	17	12	4,771	718	...	...
Miscellaneous drilling	6	29	...	.....	.....	8	...
Group No. 4—gas fields:							
Buena Vista Lake	...	...	...	.....	4	...	...
Buttonwillow	...	...	...	.....	12	1	...
Delano	...	1	...	.....	1	...	...
Goleta	...	...	...	.....	...	1	...
Marysville Buttes	...	...	...	.....	3	...	...
McDonald Island	...	...	...	.....	4	...	...
Rio Vista	...	...	...	.....	21	...	...
Semi-Tropic	...	...	...	.....	2	...	1
Tracy	...	...	...	.....	5	...	1
Total September	92	195	72	49,726	14,417	16	15
Total August	117	209	81	84,906	14,375	21	21
Decrease (*Increase)	25	14	9	35,180	*42	5	6

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the November 2 issue. All changes in crude-oil-price schedules will be published completely in the first issues following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, Louisiana	1.03
Smackover, Arkansas, heavy	.73
Illinois basin	1.05
Pecos County, Texas	.78
Lance Creek, Wyoming	.77
Bradford, Pennsylvania	2.40

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

	Signal Hill, California	Oklahoma, Kansas	Gulf Coast Texas
14-14.9	$0.80	....	....
15-15.9	.80	....	....
16-16.9	.80	....	....
17-17.9	.80	....	....
18-18.9	.80	....	....
19-19.9	.82	....	$0.86
20-20.9	.85	$0.70	.88
21-21.9	.88	.72	.90
22-22.9	.92	.74	.92
23-23.9	.95	.76	.94
24-24.9	.99	.78	.96
25-25.9	1.03	.80	.98
26-26.9	1.06	.82	1.00
27-27.9	1.10	.84	1.02
28-28.9	1.14	.86	1.04
29-29.9	1.17	.88	1.06
30-30.9	1.21	.90	1.08
31-31.9	....	.92	1.10
32-32.9	....	.94	1.12
33-33.9	....	.96	1.14
34-34.9	....	.98	1.16
35-35.9	....	1.00	1.18
36-36.9	....	1.02	1.20
37-37.9	....	1.04	1.22
38-38.9	....	1.06	1.24
39-39.9	....	1.08	1.26
40-40.9	....	1.10	1.28

Illinois Fields

(Continued from Page 83)

tersburg sand at 2,208-54 ft., produced 5,000,000 cu. ft. of gas initially and was shut in. Penn Illinois Oil Co.'s No. 3 Pyle, C W½ SE NE Section 12-6s-8e, pay at 3,008 ft., 3,078-85 ft., and 3,103-11 ft., acidized with 5,000 gal., pumped 240 bbl. in 10 hours with 24 bbl. of water.

In Edgar County Morris Yeager's No. 1 Hannah, NW NW NW Section 11-12n-13w, was dry and abandoned at 1,920 ft. Ste. Genevieve lime was topped at 826 ft.

In Greene County F. A. Johnson's No. 1 Owens, SW SE SE Section 16-11n-10w, was drilled to 1,286 ft., where 13 bailers of sulfur water was recovered in 6 hours, and the well was plugged and abandoned.

In Clark County Trenton Rock Oil Co. abandoned its No. 2 Black, NE SE NW Section 14-11n-14w of second principal meridian, at 501 ft. The hole filled with water.

In Brown County Charles Measley and others' No. 1 Jasper Thomas, NE NE NW Section 15-1s-2w of fourth principal meridian, dry and abandoned in Niagara lime at 565-603 ft.

In Washington County Kingwood Oil Co.'s No. 1 Brink, SE SW SE Section 15-1s-1w, dry and abandoned at 3,362 ft. Devonian lime was topped at 3,115 ft.

In Jefferson County Transcontinental Oil Co.'s No. 1 Carroll, SE NE SE Section 16-2s-1e, an old well cleaned out, plugged back from 2,270½ ft. to 2,239 ft. (Fredonia lime); pumping 16 bbl. of oil and 100 bbl. of water.

In Jersey County E. M. Gould's No. 1 Pearce, NW cor. SE SW NE Section 27-8n-10w, was dry and abandoned at 1,802 ft.

Winterman's No. 1 Meuse, NE cor. NE NW SE Section 33-1n-10w, St. Clair County, Trenton lime at 759 ft., total depth 800 ft., no showing of oil or gas, abandoned.

New Wildcat Operations

In Christian County A. Moore and others' No. 1 Meyers, SE SW SE Section 7-13n-1e, spudded.

In Effingham County Paul Doran's No. 1 Toehler, NW NW SE Section 29-6n-7e, rigging up rotary.

In Richland County Pure Oil Co.'s No. 1 F. S. Bartlett, 1,019 ft. from north and 360 ft. from west lines of NE SE Section 29-5n-10e, rig up.

In Clinton County J. B. Furley's No. 1 J. F. Heinzman, NE SE NW Section 16-2n-1w, rig up. Tom Palmer's No. 1 Bierman, NW NW SE Section 20-1n-1w, location.

In Edwards County Whisenant and others' No. 1 Deink, NE SE SE Section 36-2s-10e, rig up.

In White County, Sutphin and others' No. 1 Coad, NE SW SW Section 7-3s-11e, moving in material. Schriver and others' No. 1 Woodard, SW NE SE Section 20-3s-10e, drilling at 310 ft. J. W. Carter and others' No. 1 O. Johnson, SW NW NE Section 25-6s-8e, moving in material.

Among the Outposts

In Gallatin County Egyptian Tie & Timber Co., C N½ NW SW Section 15-8s-10e, spudded. Angle and Angle's No. 1 Duffy, NE NW NW Section 25-8s-9e, location.

In Williamson County Nation Oil Co.'s No. 1 Coleman, NW SW SW Section 1-10s-1e, drilling at 1,320 ft.

In Saline County Simon Henry and others' No. 1 Seter, SW SW SE Section 1-8s-7e, was drilling at 935 ft.; had a showing of oil at 530-45 ft.

In Johnson County Tunnell Hill Oil Co.'s No. 1 Boner, C W½ SW NE Section 30-11s-3e, drilling at 3,750 ft. (estimated).

In Massac County Kahle and others' No. 1 Harvick, SW SW SW Section 23-14s-3e, shut down at 3,030 ft. Marshall Drilling Co.'s No. 1 McGhee, NE cor. Section 3-16s-5e, shut down at 1,580 ft.

In Cook County Crane and others' No. 1 Wulf, NW NW NE Section 2-42n-12e, was shut down for orders at 210 ft.

In Peoria County Blue Bell Oil Co.'s No. 1 Kyle, NW SW NW Section 17-8n-6e of the fourth principal meridian, underreaming 8-in. casing to 545 ft. Algonia Oil Co.'s No. 1 Cramer, SE SE SW Section 27-8n-5e of fourth principal meridian, coring at 912 ft.

In McDonough County Charles Measley's No. 1 Cummings, NE cor. NW NE Section 32-7n-11w, had Devonian lime top at 495 ft. and was drilling at 510 ft.

In Clinton County Cascade Oil Co.'s No. 1 Adams, SE cor. SE NE Section 13-3n-1w, total depth 1,443 ft., pumped 70 bl. of oil in 12 hours, but is estimated good for 250 bbl. per day on pump with a small quantity of water accompanying. International Oil Co.'s No. 1 Adams, SE NE NE Section 13-3n-1w, set 4½-in. casing at 1,429 ft., total depth 1,435 ft. In the same area but over the line in Marion County Shell Oil Co., Inc.'s No. 1 Ververs, SW cor. NW¼ Section 18-3n-1e, had Benoist sand at 1,425-36 ft. and set 4½-in. casing at 1,424 ft. Back in Clinton County M. C. Trumbull and others' No. 1 Peters, SW cor. SW SE SE Section 33-2n-4w, corrected location, was rigging up machine, and same owners were moving in material for No. 1 Ackman, SE SW SE Section 22-2n-3w.

In Marion County Max Pray's No. 5 Cole, NE cor. SE NW SE Section 16-2n-2e, an old well being deepened, topped Devonian lime at 3,490 ft.; had saturation at 3,549-73 ft., and ran 5½-in. casing to 3,540 ft. for a test. Kingwood Oil Co. and Bell's No. 14 Shanafelt A, 330 ft. from east and 620 ft. from north lines of NE NE Section 20-2n-2e, was drilling at 2,200 ft., deepening to the Devonian lime from an old total depth of 2,039 ft. Same operators' No. 1 Shanafelt A, SE NW NE Section 20, was deepening from 2,009 ft., and at 2,309 ft. acidized with 2,000 gal., and was being tested.

In Monroe County Cummings and others' No. 2 Boyer, SE SW SE Section 19-1s-10w, had a small oil showing at 1,110 ft., and was drilling at 1,112 ft. Peter's No. 1 Schuster, NW NW SW Section 13-3s-8w, was shut down for orders at 1,502 ft. Hughes Petroleum Corp.'s No. 1 Fenoia, NE NE SE Section 15-3s-11w, was shut down for casing at 350 ft.

In Lee County Otto's No. 1 Barnes, SE NE SW Section 6-19n-10e, was drilling at 250 ft., with 6-in. pipe set at 200 ft.

In Edgar County Burkett's No. 1 Scholtker, C W½ NW SE Section 30-6n-11w, was drilling at 165 ft.

In Coles County East Oakland Syndicate's No. 1 Temple, SW cor. SE NE Section 36-14n-10e, was swabbing water, total depth 2,240 ft. (estimated). Koder's No. 1 Horsely heirs, SE NW NE Section 31-12n-10e, underreaming casing to 985 ft. Trulock & Mumford's No. 1 Trulock, SE SE NE Section 7-12n-14w of second principal meridian, junked the hole at 295 ft. and skidded rig for new hole.

In Cumberland County National Consumers Oil Co.'s No. 1 Ward, NE SE NE Section 17-9n-9e, was abandoned at 2,152 ft.

In Shelby County E. D. Boeseke and others' No. 1 Bigler, NW NE NW Section 12-9n-6e, McClosky lime at 2,676-80 ft., dry and abandoned.

In Effingham County Kingwood Oil Co.'s No. 1 Reichhelm, NE NE NE Section 21-6n-6e, McClosky lime at 2,609-13 ft., drilling at 2,883 ft., with no showing of oil. Minerva Oil Co.'s No. 1 Reed estate, SE NE SW Section 10-6n-5e, drilling at 1,800 ft.

In Jasper County Mammoth Producing & Refining Co.'s No. 1 Johnoff, C E½ NE SE Section 24-5n-9e, shut down for orders at 2,998½ ft.

In Fayette County Conry's No. 1 Smith, NE cor. NW Section 6-5n-3e, total depth 1,657 ft., was waiting for storage. It is estimated good for 80 bbl. of fluid per day, 5 per cent water.

Oil, Inc.'s No. 1 Wade, NW SW NE Section 28-5n-4e, Fayette County, was dry and abandoned at 2,511 ft.

In Effingham County Duncan's No. 1 Ranes, NW cor. NE SW SE Section 17-5n-5e, total depth 2,338 ft., drilled plug and bailed water and a small showing of oil; recementing casing. Burnett's No. 1 Smith, NE cor. SW¼ Section 21-5n-5e, drilling below 1,800 ft.

In Lawrence County J. Kesl and others' No. 1 Scott Gray, SE SE NW Section 18-4n-10w, is a 24,000,000-cu. ft. gas well from Bridgeport sand at 1,062 ft., total depth 1,1[illegible] ft. George Herbst's No. 1 Prather, C NE SE Section 18-4n-10w, is good for 20,000,000 cu. ft. of gas per day from Buchanan sand at 1,039 ft., total depth 1,105 ft. Both wells were completed.

In Wayne County Cayuma Oil Co.'s No. 1 Borah, C E½ SW NE Section 23-1s-8e, topped Fredonia lime at 3,144 ft., bailed down to oil level and acidized with 1,000 gal. and 2,000 gal.; oil rose 700 ft. in the hole; will put on pump.

In Hamilton County Robinson's No. 1 Porter, SW SE SW Section 17-7s-7e, Ste. Genevieve lime at 3,004 ft., total depth 3,041 ft., shut down. Carl Robinson's No. 1 Gholson, NE NE NW Section 16-7s-7e (corrected location), rig up.

In Wayne County Roach and Voyles' No. 1 Milner, C E½ SW SE Section 33-1s-7e, perforated casing at 3,249-59 ft., flowed 72 bbl. of oil in 3 hours, testing. Roseclaire lime topped at 3,215 ft. New Penn Development Co.'s No. 1 Xanders, NE SW SW Section 7-2s-9e, drilling at 5,550 ft.

In Edwards County Harry Thorpe and others' No. 1 Broster, NW SE NW Section 33-1s-14w, total depth 2,684 ft., coring ahead. Herrick and Broadus' No. 1 Broster, NW SW SE Section 34-2s-14w, shot with 10 qt. at 2,632-47 ft., fishing for sand pump. L. N. & K. Oil Co.'s No. 1 Broster, 12 ft. north line and 700 ft. east line of SW SE Section 24-21-14w, Cypress sand 2,646-52 ft., total depth, will shoot.

In Wabash County Centralia Refining Co.'s No. 1 J. H. Vanault, SW NE SW Section 9-2s-13w, shut down for orders at 2,440 ft.

In Gallatin County Delta Drilling Co.'s No. 1 Wineberger, C W½ NW SW Section 21-9s-9e, fishing at 2,486 ft.

In Clark County Miller's No. 1 Booth, SE NE NW Section 17-11n-14w, shot with 340 qt. at 2,462 ft., total depth, 1,100 ft. of oil in hole, running tubing and rods. Strickler's No. 1 McFarland, NW NE SW Section 19-10n-13w, drilling at 2,538 ft.

In Bond County Lee and others' No. 1 Sharf, NE SW SE Section 27-7n-4w, shut down at 727 ft. Devonian Oil & Gas Co.'s No. 1 Ambuehl, NE SW NW Section 22-6n-4w, total depth 1,427 ft., reaming 6-in. casing; show of oil through water at 1,422 ft. Bond Oil Co.'s No. 1 Vogel, NE NW NW Section 21-6n-4w, Devonian lime 1,822 ft., shut down at 1,894 ft. Bond Oil Co.'s No. 1 Wade, SW SE SW Section 16-6n-4w, total depth 1,874 ft., shut down for orders.

West Texas Fields

(Continued from Page 96)

through a hole full of mud, the operators are moving in spudder preparatory to cleaning out and drilling into the pay section. The Gardner sand was found at 2,591 ft. The well is 2,240 ft. from the south and 330 ft. from the east lines of the J. P. Stone Survey 6.

Failure was seen during the week for a long-active wildcat in Erath County, Wayne Chandler's No. 1 Chandler, deepest test ever drilled in the county. Abandonment was listed at a total depth of 5,126 ft. after topping the Ellenburger formation at 5,063 ft. Location is 8 miles northeast of Stephenville and in the J. W. Moore Survey.

Several other important and closely watched wildcats and field extension tests are drilling in the West Central Texas area, however, none was at a critical stage as the week closed.

WEST CENTRAL TEXAS COMPLETIONS

Jones County

In the Avoca pool Iron Mountain Oil Co.'s No. 9 Jones & Stasney and Bowden flowed 481 bbl. in 11 hours and 48 minutes from pay drilled from 3,200-55 ft. A wildcat, Healey & Walters' No. 1 H. H. Warren, dry and abandoned at total depth of 3,474 ft. A wildcat, Ungren & Frazier and Hedrick Oil Co.'s No. 1 Dr. H. F. Lewis, dry and abandoned at total depth of 1,980 ft.

Shackelford County

In the Ivy pool Danciger Oil & Refining, Inc.'s No. 8 J. E. McCown, 417 bbl. oil in 7 hours and 20 minutes from pay from 3,195-99 ft. Wittmer Oil & Gas Properties' No. 1 J. S. McKeever, flowed 530 bbl. in 12 hours from pay from 3,145-96 ft. Wittmer Oil & Gas Properties and Owens-Snebold's No. 6 H. B. Haterius, flowed 720 bbl. daily from pay from 3,160-3,200 ft.

Taylor County

In the Bowles pool S. B. Roberts' No. 1 N. H. Mitchell, 110 bbl. daily from sand from 1,735-43 ft. Ungren & Frazier's No. 1 Willie Moore, dry and abandoned at total depth of 1,959 ft.

Sun Station Program

Sun Oil Co. is now in the midst of a retail-outlet construction program involving remodeling and building of 100 "integrated" retail service stations which will carry on a somewhat extended business in petroleum products and automobile accessories. It was estimated that 60 per cent of the stations were new and 40 per cent reconditioned to meet competition in general automobile service. The outlets will ultimately be leased out as 100 per cent Sun Oil stations.

Indiana's "Coming Attractions"

Movie fans in 13 Middlewest states will be kept posted on important "coming attractions" by the new fall and winter advertising campaign of the Standard Oil Co. of Indiana. More than 1,700 newspapers are on the list. This advertising will, in effect, offer previews of superproductions. Merchandising plans include free autographed prints of the stars to be given away at Standard service stations.

Personal Paragraphs

L. B. McCAMMON, district sales manager for the Oklahoma and Kansas division of the Ohio Oil Co., will be transferred from Tulsa, where he has resided for 15 years, to Robinson, Ill., leaving Tulsa December 2. Mr. McCammon's future work will be in the wholesale division.

VICTOR H. KELLY, vice president of the Union Oil Co. of California, will be honored by having the newest tanker of the company named for him. It is now being built at the Sparrow's Point yard of Bethlehem Steel Corp. and will be a sister ship of the L. P. St. Clair, probably taking its place in the company's fleet March 1, 1940. Mr. Kelly has been with the company for 26 years and was elected vice president early this year.

JOHN G. CATLETT, Tulsa operator, was slightly injured by shotgun pellets while duck hunting.

J. D. AIMER, geologist, Arkansas Fuel Oil Co., Shreveport, La., has been called to Dallas, Tex., by the illness of his mother.

JAMES M. KLINE, who graduated last year from University of California, has joined the Richfield Oil Corp., at Long Beach, Calif.

THOMAS F. STIPP, petroleum engineer with the U. S. Geological Survey, has been transferred from Casper, Wyo., to Taft, Calif.

DAVID GRAHAM, with the geological department of the Republic Production Co., Houston, Tex., together with BILL DOSS, the company's land man and scout for the West Texas area, are touring the Permian basin area on an inspection trip.

DR. M. B. COOKE, at one time head of the research department of Tide Water Associated Oil Co., and more recently chemical engineer with the Alco Products division of the American Locomotive Co., has been retained by foreign refining interests on a consulting project.

H. O. FOREMAN, E. C. SWAILS, O. L. COLLINS and W. W. WARDEN, veteran employes of Texas Co., were honored at an "Old-Timers" banquet in El Dorado, Ark., last week. ERNEST HAWKINS, of Shreveport, La., was principal speaker at the dinner given by the Arkansas-Louisiana division of the company.

DAN DOBLER, of the Texas Co. marine department, with offices at Wilmington, Calif., and chairman of the California Bilge Club, composed of men engaged in marine operations, has completed plans for the club's annual meeting which this year will be held at the California Yacht Club and is restricted to members and executives.

R. S. TURNER, San Francisco, Calif., export manager, Tide Water Associated Oil Co., during the past 19 years, has resigned to engage in business as an export oil broker. He returned recently from a 15-month survey in the Far East "convinced that the trade between California and all countries on the Pacific will shortly develop an increased tempo."

HOWARD PIXLEY, formerly a Phillips Petroleum Co. research man, is now with the Rice plant of the Phillips natural-gasoline department near Borger, Tex.

H. C. MOUGEY, who has been chief chemist and assistant technical director of the research laboratory of General Motors Corp. at Detroit, Mich., has succeeded DR. F. O. CLEMENTS as technical director. Dr. Clements, who had served 19 years in this department, has retired.

ALF M. LANDON, oil operator and former governor of Kansas, said in an interview: "If federal control is to be avoided it will be through better cooperation between the industry and the states and better cooperation between the regulatory bodies of the states productive of oil."

C. E. SWIFT, a native of South Dakota and a graduate of University of Southern California with degrees in chemistry and law, has been appointed patent counsel of Union Oil Co. and has already moved his office and staff to the company's Wilmington refinery at Los Angeles.

O. H. MULLER, JR., formerly with Pure Oil Co. in Chicago, sales manager of Richfield Oil Co. in New York and sales manager of Richfield Oil Co. during the receivership period of several years, has been appointed distributor of the products of Fletcher Oil Co. in Los Angeles, Calif., territory, serving the commercial trade.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The Cushing field in Oklahoma is producing 215,000 bbl. per day.

J. W. Cappeau, prominent Pittsburgh stock broker, and Miss Elizabeth J. Watson of Pittsburgh were recently married.

Robert E. Hasson, 67, of Oil City, Pa., pioneer oil man, died on November 27.

Henry Suhr, Oil City oil refiner, died at St. Petersburg, Fla., where he had gone in search of health.

20 YEARS AGO

The Beggs-Youngstown district in Okmulgee County is the largest producing field in Oklahoma with a daily output of 42,100 bbl. Cushing is second with 37,900 bbl.

Oil seepages have been reported in the basement of the Hotel Neville in Omaha, Neb., and "great excitement prevails."

The late John J. Fisher, Pittsburgh, Pa., oil operator and capitalist, left an estate of $3,000,000.

10 YEARS AGO

A well in the Zwolle field in North Louisiana is estimated at 7,000 bbl. per day. A new well in the Oklahoma City field produced 1,960 bbl. in 65 minutes. It produced gas at the rate of 40,000,000 cu. ft. per day.

Crude of 35° gravity in Kansas, Oklahoma, North Texas, Louisiana, and Arkansas brings the producer $1.45 per barrel. Pennsylvania Grade crude sells for from $3.05 downwards.

James B. Schermerhorn, prominent oil producer in the southern Oklahoma fields, but a resident of Minneapolis, Minn., dies in a Rochester, Minn., hospital.

E. W. JONES, Tulsa operator, has been spending the week deer hunting in Texas.

TIM RILEY, scout with the Benedum-Trees Oil Co., has been transferred from Illinois to Mississippi.

CHARLES M. REED, Consolidated Oil Corp., has returned to Caracas, Venezuela, after a stay in the United States.

HOMER LYNN, geologic scout with the Magnolia Petroleum Co., has been transferred from Oklahoma City, Okla., to Jackson, Miss.

MARION E. BROCK, assistant to the vice president of Gulf Oil Corp. at Houston, Tex., was elected president of the Houston Kiwanis Club.

J. H. REHKOPF, of Arkansas Pipe Line Corp.'s oil pipe-line division, Shreveport, La., is proudly displaying the A.P.I. safety plaque on his desk.

FRANK F. FULK, geologist for the Stanolind Oil & Gas Co. at Midland, Tex., and Mrs. Fulk, have returned from a 2-week vacation trip to Los Angeles and San Diego, Calif., and the Grand Canyon.

C. R. (RICH) RICHARDSON, scout for Gulf Oil Corp. in the Texas Panhandle district and stationed at Amarillo, Tex., left last week end for a 2-week vacation trip through South Texas. He will spend some time at his old home ranch near Liberty, Tex., and another part of his time attending various football games along the way.

W. W. WEIR, scout and geologist with the Woodley Petroleum Co., is now stationed in Jackson, Miss.

SAM E. DUNNAM, JR., independent operator of Houston, Tex., returned last week from a business trip to New York.

DR. THOMAS MIDGLEY, of General Motors Corp., chairman of the board of the American Chemical Society, was among the distinguished guests at the Frank Phillips birthday party at Bartlesville, Okla.

A. E. PEW, JR., vice president of Sun Oil Co., was the principal speaker recently on a program at Marcus Hook, Pa., marking the first anniversary of the Sunoco Colored Employe Athletic Association.

JOHN BRANNON, formerly of Amarillo, Tex., and recently with Magnolia Petroleum Co. as scout at Bridgeport, W. Va., has been transferred to Colorado City, Tex., by the company as scout for the eastern Permian basin land and lease department.

MAXWELL E. McDOWELL, head of the tax department of the Standard Oil Co. of New Jersey, was among the speakers on federal taxation at the November meeting of the New York State Society of Certified Public Accountants last week at the Waldorf-Astoria in New York.

A. L. HECHT, with the Bridwell Oil Co., Wichita Falls, Tex., has been named president of the Bridwell Employes Oil Co. Other officers named were FRANK BRIDWELL as vice president and R. A. BIRK as secretary and treasurer. The company was created recently following a gift by J. S. BRIDWELL of 400 acres of potential oil land in Webb County, Southwest Texas.

Unitization Authority

L. Mosely Moffitt, recently elected president of the Louisiana-Arkansas division of the Mid-Continent Oil and Gas Association for the fourth consecutive term, got into the oil business in 1914 as one of a group in Shreveport, La., who organized a company to develop a lease in Red River Parish. He has been in it ever since. In 1916 he went to Colombia as assistant to J. S. McCullough, then manager of Tropical Oil Co. He came back the next year to enter the air service in the World War. Following his discharge he spent some time in Colorado and North Texas recovering from influenza and pneumonia before returning to the oil business in Shreveport.

Blank & Stoller

L. MOSELY MOFFITT

In 1921 Mr. Moffitt and several other Shreveport men formed the Triangle Drilling Co., and he has been its secretary-treasurer continuously. He represented the Sugar Creek Syndicate, Inc., in 1930 in one of the country's first unitization projects, embracing leases at Sugar Creek, in Louisiana. He emerged from that experience an acknowledged authority on unitization and a vigorous advocate of conservation.

Mr. Moffitt, who was born in Pilot Point, Tex., in 1890, acquired a high-school and business-college education; married Miss Tom Jones, of Pilot Point, and has one daughter. He has served as president of the Shreveport Rotary Club and he is vice chairman of the city's community chest campaign this year. When the Ark-La-Tex chapter of the A.P.I. was organized last spring he was chosen chairman.

EARL BARTHOLOMEW, director of the Ethyl Gasoline Corp. laboratory at Detroit, was a visitor in Tulsa this week.

DALE W. MOORE, petroleum marketer of Houston, Tex., left last week for a business and pleasure trip to Chicago and New York.

ALLAN GRAVES, geologist for Socony-Vacuum Co. in Colombia, South America, made a 37-hour 5,000-mile airplane trip to Edmonton, Alta., where he is visiting his parents.

LOUIS FEIGHNY, Oklahoma A. & M., 1939, and J. O. MOTSENBOCKER, Oklahoma University, 1939, have joined the Phillips Petroleum Co. at the Okmulgee refineries.

WILLIAM D. MARTIN, of Fredonia, N. Y., has returned to Venezuela, where he is connected with the Mene Grande Oil Co. at Maracaibo. H. D. HEDBERG, assistant chief geologist of the Mene Grande Oil Co., has been transferred from Ciudad Bolivar to Barcelona, Venezuela.

HERBERT F. WILKINSON, University of California, 1936, and University of Michigan, 1939; LAWRENCE S. BURKE, University of Nebraska, 1939, and LOREN D. BRUBB, Kansas State College, 1938, have joined the Continental Oil Co. as chemical engineers.

OLIN G. BELL, division production geologist of the Humble Oil & Refining Co. at Houston, Tex., was guest speaker at a meeting of the Texas A. & M. College student chapter of the American Institute of Mining and Metallurgical Engineers at College Station last week. Mr. Bell spoke on "The Function of a Production Geologist."

Shifts: K. M. LAWRENCE, geologist Amerada Petroleum Corp., from Jasper, Ala., to Tuscaloosa, Ala.; S. B. KELLOW, superintendent Badger Oil & Gas, Inc., from Bellville, Ill., to Vandalia, Ill.; W. I. INGHAM, geologist Mid-Continent Petroleum Corp., from Morgantown, Ky., to Greenville, Ky.; L. D. CASON, engineer Texas Co., from Lafitte, La., to Baton Rouge, La.; W. C. ADAMS, geologist, Deep Rock Oil Corp., from Morgan City, La., to Oakdale, La.; ARTHUR C. BOYCE, vice president, Darby Petroleum Corp., from Monterey, Mass., to Miami Beach, Fla.; BARNEY G. DICKSON, Engineers, Ltd., from Barranquilla, Colombia, South America, to Kilgore, Tex.; W. W. CLINE, purchasing agent Rocky Mountain Drilling Co., from Bakersfield, Calif., to Los Angeles, Calif.; J. T. DAWSON, geologist Coastal Oil Co., from Corpus Christi, Tex., to Jackson, Miss.; J. C. HALLAMAN, engineer Texas Electric Service Co., from Dallas, Tex., to Catlettsburg, Ky.; ROSS M. LOCKHART, Lockhart Oil Co., from San Antonio, Tex., to Alice, Tex.; ED C. MALRONEY, scout, Shell Oil Co., Inc., from Centralia, Ill., to Lawrenceville, Ill.; JOHN S. VAN SANT, geologist J. M. Huber Corp., from Cut Bank, Mont., to Borger, Tex.; H. E. LILLIBRIDGE, geologist Eason Oil Co., from Enid, Okla., to Jackson, Miss.; T. D. WALKEY, superintendent Oklahoma Pipe Line Co., from Tulsa to Harlingen, Tex.

J. W. SELBY, chief scout for the Shell Oil Co., Inc., at Houston, Tex., left last week on a deer hunt in Real and Edwards counties in Southwest Texas.

GEORGE H. ECHOLS, Houston, Tex., operator, and MISS HELEN SPARROW of Parsons, Kans., were married November 23 at Parsons. They left for a honeymoon in New York.

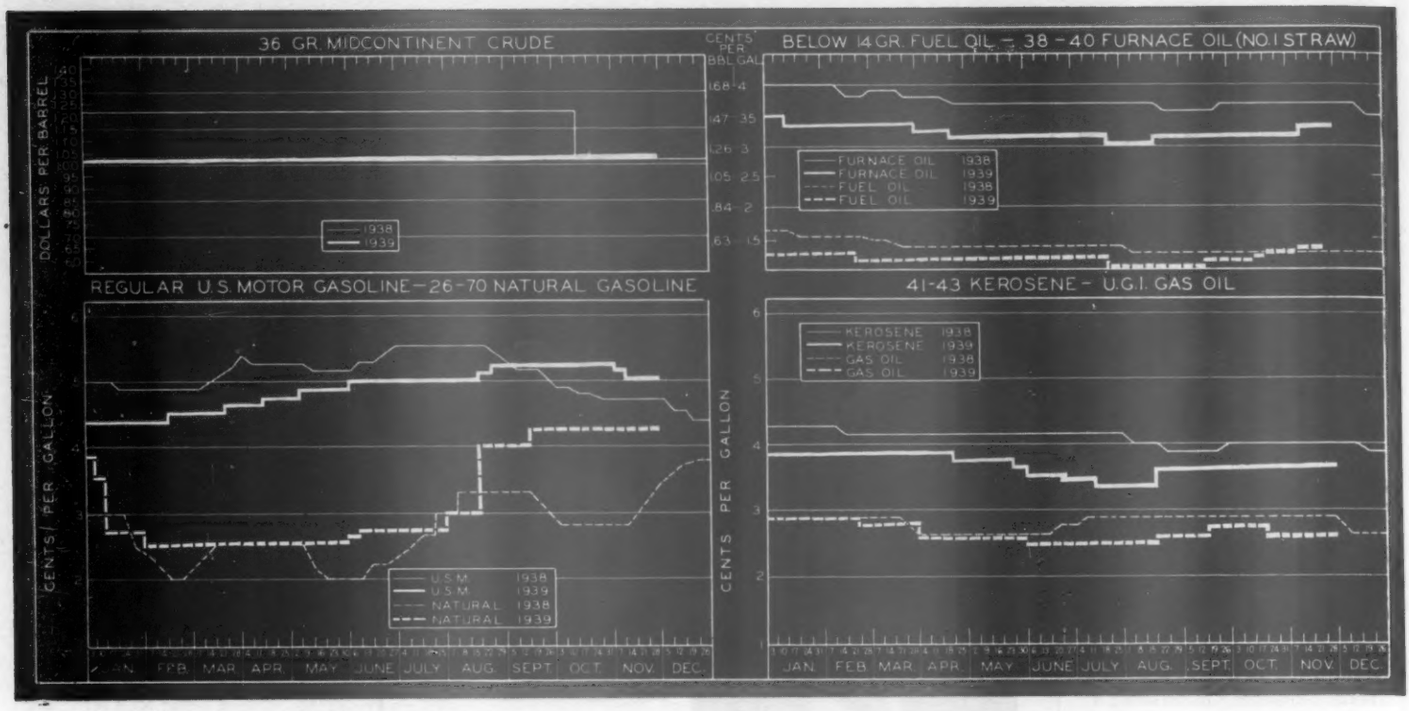
CHASE SUTTON, division manager of the Pure Oil Co. in the Gulf Coast division at Houston, Tex., returned last week from an extended tour of the company's holdings in Venezuela. While Mr. Sutton was on his tour, he was promoted to director and general manager of the Orinoco Oil Co. of South America, a subsidiary of the Pure Oil Co. Mr. Sutton will remain in Houston and will continue his present position with Pure Oil Co.

CARL L. BRAZELL, scout for the Superior Oil Co. at Houston, Tex., has been transferred to coastal Louisiana, with headquarters at Lake Charles.

GOV. LEON C. PHILLIPS, of Oklahoma, will be the speaker at the noon luncheon of the annual meeting of the Oklahoma Stripper Well Association Friday, December 1, in the Chamber of Commerce dining room, Tulsa.

PAUL POTTER, chief scout for Shell Oil Co., Inc., Tulsa, taking a belated vacation, went on a busman's holiday by personally scouting the new oil field at Yazoo City, Miss., before going to Natchez, Miss., for a period of rest and recreation.

H. P. GRIMM, former California oil umpire and president of Green Bay Co. which has production in New Mexico, has resigned as president of Bolsa Chica Oil Co. and has been succeeded by THOMAS SIMMONS, an independent operator who has production in the Torrance field as well as interests in several leases in the Montebello field.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Softness of Gasoline More Noticeable in Group 3 Market; Naturals Lag

By T. F. SMILEY

SOFTNESS of gasoline in the Group 3 market became more pronounced this week. Consumption, aided by pleasant motoring weather in most areas, continued at a high level, but it was unable to overcome various unfavorable conditions. The naturals too had slowed down. Most other divisions of the market were either holding their ground or doing better.

The Thanksgiving holiday, or holidays—for observance was divided between November 23 and November 30—failed to create the gasoline demand that refiners ordinarily look for. Jobbers saw to it that they had enough to take care of football requirements, but this buying was of such moderate proportions that it imparted no noticeable life to the market.

Urgent Gasoline Offerings

While the fundamental difficulty facing the gasoline market lies in excessive runs to stills, along with stocks that are 7,500,000 bbl. larger than they should be, immediate trouble for Mid-Continent refiners has been created by urgent offerings in a market already well supplied and by competition from material produced by refineries operating on cheap Illinois crude.

Refiners, perhaps pressed for cash to meet current obligations, have been offering gasoline at prices far below published quotations in the past week. Although the quantities involved were reported to have been relatively small, they were sufficient to inject uneasiness into the market.

Gasoline made from Illinois crude is going into markets in Illinois and in parts of Wisconsin and Minnesota formerly supplied almost entirely by Oklahoma refiners. The necessity of finding other outlets to compensate for those lost to Illinois presses hard.

Mid-Continent gasoline inventories are in fairly healthy shape in comparison with those in other areas, but this advantage by itself is not sufficient to convert a laggard market into a brisk one. Furthermore, accumulations at Gulf ports, intended for an export business that has not yet developed, are eyed with concern, for it is realized that if they are not disposed of through either oversea or coastwise trade, they are likely to back up into interior territory. Third-grade gasoline alone was credited with being firm.

Lubricating oils were maintaining their vigor, at unchanged prices. Statistics released by the Western Petroleum Refiners Association showed 42 days' supply of bright stock at the close of October in the hands of refiners in the Mid-Continent area who are members of the association, compared with 64 at the close of September, and 82 at the close of August. Inventories had dropped from 278,690 bbl. on September 30 to 196,687 bbl. on October 31. October production was slightly under that of September.

There was a marked jump in the production of viscous neutrals, the October figure of 232,913 bbl. comparing with 170,414 bbl. for September. An explanation suggested was that various refiners happened to finish large quantities of the material just after making their September reports. Inventories of 131,382 bbl. at the end of September had grown to 143,251 bbl. at the end of October. The 27 days' supply at the end of October compared with 25 at the end of September.

Natural Gasoline Spotty

Spottiness characterized the natural gasoline market. No distress stocks in the field were reported, but there was no scarcity of offerings and there were signs that supply might outrun demand. Two cargoes of motor fuel shipped coastwise helped the case of the naturals a little, and there were export inquiries for several part cargoes of 18 to 22-lb. natural.

Notwithstanding persistent mild weather in northern regions, the heating oils displayed a better tone. No. 2 straw material was scarce.

Refined Oil Market Barometer

Need of sharp curtailment of runs to stills becomes more evident as mounting stocks continue to depress the gasoline market. Growing firmness in domestic fuels is apparent, notwithstanding prolonged warm weather, and new records in consumption are predicted. Natural gasoline has lost its buoyancy of a few weeks ago. Lubricants and wax maintain their vigor.

MID-CONTINENT. Gasoline weak. Naturals easy. Domestic and industrial fuels firm.

EAST COAST. Little change in gasoline. Light fuels strong. Kerosene more active.

GULF COAST. Gasoline somewhat steadier. Fuel and other heavy oils firm. Lubricants scarce.

PENNSYLVANIA. Gasoline dull. Wax tight. Lubricating oils maintaining strength.

CALIFORNIA. Gasoline steady. Natural soft. Diesel and gas oil in better demand.

CHICAGO. Gasoline lifeless. Domestic heating oils steady. Industrial fuels firm.

Socony-Vacuum Raises Prices of Gasoline on Eastern Coast

By H. STANLEY NORMAN

NEW YORK, Nov. 28.—A tenth-of-a-cent advance in the tank-car price of all grades of gasoline was instituted Monday, November 27, by Socony-Vacuum Oil Co., Inc., throughout New York and New England, with the exception of western New York. Higher and advancing tanker-charter rates and relatively heavy early-winter consumption were considered the causes of the advance.

At the same time the depressed tank-wagon market for regular gasoline (Mobilgas) in New York City was advanced three-tenths of a cent per gallon, from 8.4 to 8.7 cents, exclusive of taxes. The retail prices as posted under the Feld-Crawford Act for Mobilgas was advanced a half cent per gallon in New York City to 12.5 cents per gallon, exclusive of taxes. Because of the advancing tanker-charter rates and the relative stability of the Gulf Coast primary market, other refiners were expected to follow the advance immediately.

The anticipated advance in light fuel-oil prices in this section of the country moved a step nearer last week as tank-car and tank-wagon markets grew firmer. Stocks of light burning oils continue to run more than 2,000,000 bbl. behind 1938 inventories, and consumption so far this fall leaves little doubt that domestic demand will set a new record before end of the winter.

The gradual, steady advance in tanker-charter rates continued last week and this factor alone makes an advance in fuel-oil prices along the North Atlantic seaboard practically inevitable. As an indication of the current tanker rates, a boat was fixed late last week for January movement of a cargo of heavy crude or fuel oil from the Gulf Coast to a port north of Cape Hatteras at 43 cents per barrel. With Gulf Coast refiners asking from 4 to 4½ cents per gallon for light fuel oil, the delivery cost at New York, Philadelphia, and Boston currently falls between 5 and 5½ cents.

The current New York market for No. 2 fuel oil in tank cars at nearby refineries and ocean terminals is 4.6 to 4¾ cents per gallon, or at least a quarter of a cent below the cost indicated by conditions on the primary Gulf market. Sales in barges of No. 2 fuel oil were reported during the week at 4½ cents in the vicinity of New York, but suppliers are not anxious sellers at this figure. Distributors and refiners with stocks on hand above their minimum contract requirements are anxious to receive benefit of the market advance, which they anticipate will be instituted perhaps before November closes, but certainly no later than December.

A moderate upswing in the demand for kerosene at New York and other North Atlantic ports has been reported during the past 10 days. Delivery in barges is being made in the vicinity of New York at 5 cents per gallon, but most suppliers are asking from 5¼ to 5⅜ cents per gallon for spot tank-car delivery. Demand is particularly strong in the New England section, but consumption of kerosene in space-heating facilities is expanding in the territory from New York south to Washington in keeping with the lower general range of temperatures.

One supplier of motor fuel in Baltimore was reported to have dropped tank-car prices on low-octane gasoline a quarter of a cent per gallon, but other suppliers held their quotations at previous levels. Low-octane gasoline in New York is generally quoted at 6½ to 6¾ cents per gallon. The motor-fuel market is weak, but the increase in tanker rates virtually eliminates the possibility of lower wholesale quotations in the tank-car and retail-price structure along the North Atlantic seacoast. Consumption is reported holding at expected levels of about 5 per cent above 1938 levels for this season.

As an indication of the consumption trends in this section, Mark Graves, New York commissioner of taxation and finance, announced last week that taxable sales of motor fuel in New York last September exceeded sales of any previous September on record. September sales, subject to tax, totaled 166,947,673 gal., a gain of 9,947,673 gal. over September 1938. For the first 9 months of the year taxable motor-fuel sales in New York totaled 1,333,229,095 gal., a gain of 66,550,621 gal. over sales in the corresponding period last year.

Bunker C fuel oil and No. 6 industrial maintained their strong market spot last week, with indications pointing to an early advance on these materials. Bunker C fuel oil was offered in New York at $1.15 per barrel, with sales at concession below this figure practically eliminated during the past week. Suppliers of No. 6 fuel, the industrial grade used in factories and large building-heating systems, are less inclined to shade prices than in recent weeks. Most tank-wagon sellers of No. 6 fuel oil are asking 3⅛ to 3½ cents per gallon, and supplies are difficult to locate at lower figures for contract delivery over the first 6 months of 1939.

The scale of maximum prices announced last week for 1940 Bunker C and industrial fuel-oil contracts has been widely adopted. The maximum prices for Bunker C fuel-oil contracts in 1940 are $1.25 for the first 6 months and $1.35 for the last 6 months. Distributors on the North Atlantic Coast report that Gulf refiners are currently quoting from 90 cents to $1 per barrel for No. 6 fuel oil in tanker cargoes and that supplies at the low of the range are difficult to locate.

The range of prices quoted by western Pennsylvania refiners for lubricating oils was virtually unchanged. Reports were current that one refiner lifted his minimum quotations on 25-pour-test bright stock and neutrals a half and a cent per gallon, respectively, but under the conditions of controlled sales the move did not mean much with regard to spot markets. Refiners are still restricting sales of lubricating oils to contract customers and the individual shipmens are "prorated" among customers.

The scale-wax market remains a feature of conditions in western Pennsylvania. Some refiners report that higher prices ranging from 6½ to 6¾ cents have apparently discouraged some of the buying, but sales at these higher figures have been consummated in the New York market, presumably for export movement.

Refiners and distributors normally moving materials from the Gulf to North Atlantic ports for secondary distribution report that tankers are difficult to locate for January and February loading and that current prices ranging from 42 to 43 cents per barrel will probably push higher before the end of the year.

A. P. I. Weekly Refinery Statistics

Week ended November 25, 1939

	Capacity reporting (per cent)	Daily crude runs (bbl.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	581,000	18,309,000	12,130,000
Appalachian	87.3	128,000	2,954,000	696,000
Indiana, Illinois, and Kentucky	90.7	573,000	11,108,000	6,895,000
Oklahoma, Kansas, and Missouri	81.6	259,000	6,186,000	4,351,000
Inland Texas	50.3	111,000	1,626,000	2,203,000
Texas Gulf	90.9	749,000	10,755,000	12,464,000
Louisiana Gulf	97.8	126,000	2,674,000	2,970,000
North Louisiana and Arkansas	55.0	43,000	353,000	844,000
Rocky Mountains	54.2	55,000	1,057,000	588,000
California	90.0	518,000	15,273,000	91,768,000
Total reported	86.4	3,143,000	70,295,000	134,909,000
Estimated unreported	.....	367,000	5,300,000	3,155,000
*Estimated total	.....	3,510,000	75,595,000	138,064,000
*Estimated total previous week	.....	3,515,000	73,696,000	138,958,000
*November 26, 1938	.....	3,244,000	69,492,000	153,634,000

*Bureau of Mines, currently estimated.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended November 18, 1939	229,835,000 barrels
Week ended November 11, 1939	230,037,000 barrels
Week ended November 19, 1938	271,955,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Gulf Coast Markets

HOUSTON, Tex., Nov. 28.—The fact that gasoline prices have been maintained at the same level for the past 4 weeks, despite market inactivity and increased supplies, is beginning to give a little encouragement to Gulf Coast refiners that possibly they may be able to hold out at these levels pending development of the long-expected war demand. That the warring countries, particularly England and France, shortly will work out means of transportation and relieve the present

(Continued on Page 127)

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of November 28, 1939

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline: Tank wag.	Gasoline: Dir.	Gasoline: Inc. tax	Kero. tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	8.5
Joliet	15.1	13.6	4.0	*10.0
Peoria	15.1	13.6	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	9.9
Minneapolis	16.5	15.0	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.0
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	13.6	11.4	4.0	7.6
Grand Rapids	13.5	12.0	4.0	9.7
Saginaw	14.8	13.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	15.3	5.0	†10.7
South Bend	16.8	15.3	5.0	†10.0
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.9	4.0	7.9
Wichita, Kans.	13.3	11.1	4.0	7.9

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective September 18, 1939, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5.25 cents; 400 gal. and over, 4.25 cents. Stanolex Grade B, 1-799 gal., 5.25 cents; 800 gal. and over, 4.25 cents. Stanolex Grade C, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank-wag. cons'r.	Gasoline: Di-vided dlr.	Gasoline: Inc. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.0	*13.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Cons'r. tank car	Gasoline: Dir. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	7.60
Newark	11.6	12.7	4.0	7.60
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	7.5
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.0	3.0	9.5
Danville, Va.	14.95	17.45	6.0	12.9
Norfolk	13.75	16.25	6.0	11.0
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	10.7
Roanoke	15.25	17.75	6.0	11.0
Charles'n, W. Va.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.85	16.75	6.0	12.2
Charlotte, N. C.	16.90	18.40	7.0	11.8
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.85	18.15	7.0	11.5
Salisbury	16.95	18.45	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	10.6
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline: Cons'r. tank wag.	Gasoline: Net dlr.	Gasoline: Inc. tax	Kero. tank wag.
Atlanta, Ga.	21.0	18.0	7.0	9.0
Augusta	20.5	17.5	7.0	10.0
Macon	21.0	18.0	7.0	10.5
Savannah	19.5	16.5	7.0	9.0
Birmingham, Ala.	21.5	18.5	8.0	9.0
Mobile	21.5	18.5	9.0	9.0
Montgomery	22.5	19.5	9.0	11.0
Jackson, Miss.	19.5	16.5	7.0	10.0
Vicksburg	19.5	16.5	7.0	9.5
Jacksonville, Fla.	19.0	16.0	8.0	8.0
Miami	20.0	17.0	8.0	7.0
Pensacola	21.5	18.5	9.0	8.5
Tampa	20.5	17.5	8.0	8.5
Lexington, Ky.	19.5	16.5	6.0	10.0
Covington	18.0	15.0	6.0	9.5
Louisville	18.5	15.5	6.0	9.0
Paducah	18.5	15.5	6.0	9.0

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline: Cons'r. tank car	Gasoline: Dir. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
Philadelphia, Pa.	12.0	13.5	5.0	10.0
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	12.5	14.0	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	13.0	14.5	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.	...	14.0	5.0	10.5
Wilmington	...	13.5	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon.

*Voluntary discount of 1 cent allowed to dealers only.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline: Tank truck	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes 0.25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline: Cons'r. tank car	Gasoline: Dir. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
Albany	12.5	14.6	5.0	7.80
*Met. N. Y.:				
Manhat., Bronx	12.6	13.4	5.0	8.00
Queens, Br'klyn	12.6	13.4	5.0	8.00
Staten Island	12.6	13.4	5.0	8.00
Buffalo	13.1	14.5	5.0	7.70
Rochester	13.3	14.0	5.0	8.30
Syracuse	13.1	14.5	5.0	8.30
Boston	11.4	13.0	4.0	8.00
Portland, Me.	12.5	14.3	5.0	8.00
Manchester, N.H.	13.2	15.0	5.0	8.40
Burlington, Vt.	13.0	15.2	5.0	8.20
Springfield, Mass.	12.1	13.0	4.0	8.20
Worcester	12.0	13.5	4.0	8.20
Hartford, Conn.	11.8	13.3	4.0	7.90
New Haven	11.7	12.8	4.0	8.00
Providence, R. I.	11.4	13.3	4.0	8.00

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ½ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Gasoline: Dir.	Gasoline: Inci. tax	Kero. tank wag.
Denver, Colo.	15.5	...	5.0	11.5
Grand Junction	18.5	...	5.0	15.0
Pueblo	16.0	...	5.0	9.0
Casper, Wyo.	17.5	...	5.0	11.5
Cheyenne	15.5	...	5.0	13.0
Billings, Mont.	18.5	...	6.0	13.0
Butte	20.0	...	6.0	15.5
Great Falls	19.5	...	6.0	15.5
Helena	20.5	...	6.0	15.5
Salt Lake, Utah	17.5	17.5	5.0	16.0
Boise, Idaho	21.1	21.1	6.0	18.0
Twin Falls	21.1	21.1	6.0	18.0
Albu'que, N. M.	17.0	17.0	6.5	10.0
Roswell	15.5	15.5	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Cons. tank car	Gasoline: Dir. tank wag.	Gasoline: Inc. tax	Kero. tank wag.
New Orleans, La.	15.25	17.75	8.0	†11.0
Baton Rouge	15.25	17.75	8.0	‡10.5
Alexandria	15.25	17.75	8.0	‡12.5
Lafayette	15.00	18.00	8.0	‡11.0
Lake Charles	15.25	17.75	8.0	‡12.5
Shreveport	14.00	16.50	8.0	‡11.0
Knoxville, Tenn.	18.50	21.00	8.0	13.0
Memphis	16.50	19.00	8.0	11.0
Chattanooga	18.00	20.00	8.0	12.0
Nashville	17.50	20.00	8.0	11.0
Bristol	18.75	17.75	8.0	13.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wag.	Gasoline: Dir.	Gasoline: Inc. tax	Kero. tank wag.
Omaha	16.5	13.5	6.0	9.8
McCook	16.5	14.4	6.0	9.0
Norfolk	17.3	15.8	6.0	9.5
North Platte	17.8	15.9	6.0	10.0
Scottsbluff	18.5	15.5	6.0	11.4

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline: Tank-wg. dlr.	Gasoline: Includes tax	Kero. tank wag.
Texarkana, Ark.	14.0	5.0	8.0
Fort Smith	14.5	5.0	7.5
Little Rock	17.25	7.5	8.0
Muskogee, Okla.	12.0	5.0	7.0
Oklahoma City	11.0	5.0	6.5
Tulsa	12.0	5.0	7.5

The tank-wagon price is the price to all classes of trade.

Texas

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Dallas, Tex.	12.0	16.0	5.0	7.0
Fort Worth	15.0	19.0	5.0	8.0
Houston	14.0	18.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Canada

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank wag.	Inc. tax	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	23.0	8.0	15.5
Toronto, Ont.	23.5	8.0	16.0
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	25.5	7.0	20.5
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.9
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Tank-Wagon Changes

Standard Oil Co. (Kentucky) November 13 advanced consumer tank-wagon and net dealer gasoline 0.5 cent in Miami; November 17, reduced tank-wagon kerosene 1 cent in Atlanta.

Socony-Vacuum Oil Co., Inc., November 27 advanced tank-wagon gasoline 0.3 cent in New York (all boroughs).

Allred-Powers Case Ends In Nolo Contendere

HOUSTON, Tex., Nov. 27.—Renne Allred, Jr., and Neal Powers today were fined $1,000 each after they pleaded nolo contendere to charges that they violated the Connally "hot" oil act.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of November 28, 1939

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.04¼	.04⅜
63-66 octane	.04½	.04⅝
67-69 octane	.04⅝	.04¾
70-72 octane (regular)	.05	.05⅛
60-62 400 grades:		
62 octane and below	.04¼	.04⅜
63-66 octane	.04½	.04⅝
67-69 octane	.04⅝	.04¾
70-72 octane (regular)	.05	.05⅛
68-70 360	.05	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04¼	.04⅜
63-66 octane	.04½	.04⅝
67-69 octane	.04⅝	.04¾
70-72 octane (regular)	.05	.05⅛
60-62 400	.04¼	.04⅜

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04⅜	.04⅝
63-66 octane	.04⅝	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)		.05⅝

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04⅜
67-69 octane	no quotations	
70-72 octane (regular)		.05¼

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05⅛	.05¼
60-62 400 grades:		
62 octane and below	.04⅜	.04½
63-66 octane	.04⅝	.04¾
67-69 octane	.04⅞	.05
70-72 octane (regular)	.05⅛	.05¼
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor	.04⅞	.05
65 octane	.06⅝	.06¾
72-74 octane (regular)	.06½	.06¾

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06¼	.08
58-60 400, 65 oct. and higher	.07¼	.09

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06⅛	.06⅜
Philadelphia	.06¼	.06⅜
Baltimore	.06⅛	.06⅜
Charleston, S. C.	.06⅜	.07

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05½	.05⅝
65-67 octane	.05⅝	.06
68-70 octane	.06	.06¼

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.04¼
Grade 18-55	.05	.05⅛

NORTH TEXAS—

Grade 26-70		.04
Grade 18-55		.04⅜

CALIFORNIA—

75-85 375-390	.05½	.06¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.04⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03⅞
46-48 gr., 210-230 i.b.p., 480-max., e.p.	.03⅞	.04⅛

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03⅝	.03¾
42-44	.03¾	.03⅞

NORTH TEXAS—

41-43	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03½	.03⅝

ARKANSAS (Ark. and N. La. del.)—

41-43		.03⅝

PENNSYLVANIA (inland refineries)—

45	.04¾	.05
46	.04⅞	.05⅛
47	.05	.05¼

CHICAGO (Based on Group 3)—

41-43	.03⅝	.03¾
42-44	.03¾	.03⅞

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.04⅞	.05

***GULF COAST (domestic)—**

41-43	.04½	.04¾

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3 zero to 15, 28-32	.03	.03⅛
No. 3, 15 and above, 28-32	.02¾	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03½	.03⅝
No. 1 straw, 38-40	.03⅝	.03½

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03¼

CHICAGO (Based on Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-40	.03½	.03⅝
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03¼	.03⅜
No. 2 dark, 32-36	.03⅛	.03¼
No. 3, zero to 15, 28-32	.03⅛	.03⅛
No. 3, 15 and above, 28-32	.02¾	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.04¾	.05
*No. 2	.04⅝	.04½
*No. 4	.04¼	.04½

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.70	.75
Below 14 fuel oil, industrial	.52½	.57½

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.70	.75
Below 14 fuel oil, industrial	.52½	.57½

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.45	.50

PENNSYLVANIA (inland refineries)—

36-40	.04⅛	.04⅛

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.15	1.30
24 plus diesel, per bbl.	1.00	1.30
24 plus diesel (bunkers)	1.30	1.40
12-16 (bunkers at tidewater)	.70	.90
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.85
10-17 (high sulfur)	.50	.70
San Joaquin Valley:		
10-18 (tank cars)	.55	.75
24 plus diesel, per bbl.	1.00	1.25
San Francisco:		
24 plus diesel, per bbl.	1.45	1.50
24 plus diesel (bunkers)	1.55	1.60
10-16 (bunkers)	.90	.95

GULF COAST—

No. 2 fuel		.04¼
43-47 diesel		.04
48-52 diesel		.04¼
53-57 diesel		.04½
58 and above diesel		.04¾
Bunker C (bulk cargoes)	.95	1.00
Bunker C (bunkers)	.95	1.00

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¼
28-30 diesel (lighterage 6¼c per bbl.)		1.75
28-30 diesel (tank cars)		.04¼
Bunker C (to ocean-going ships in N. Y. Harbor)		1.15
Industrial fuel (tank cars)		.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.27
150-160 D, 0-10		.24
150-160 D, 15-25		.23
150-160 E, 15-25		.23
100-110 D, 0-10		.23
Steam refined:		
600 dark green (untreated)		.08

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point	.28	.33
15 pour point	.27	.32
25 pour point	.25	.30
Steam refined:		
600	.14½	.18
650	.16	.20
600 flash	.16½	.21
630 flash	.20	.24

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.13
180-3		.14
180-4		.13½
200-3		.14½
200-4		.14
250-3		.16
250-4		.15½
280-3		.17
280-4		.16½
300-3½		.17½
400-3½		.18½
100-2½ paraffin oil		.07½
15-25 pour point:		
200-3		.14
200-4		.13½
250-3		.15
250-4		.14½
280-3		.16½
280-4		.16

GULF COAST—

Pale oils:		
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4		.10¼
Red oils:		
200-5-6	.07	.07¼
300-5-6	.07½	.07¾
500-5-6	.08¼	.08¾
750	.08¾	.09¼
1,200-5-6	.09¾	.09¾

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¾	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point	.31	.32
10 pour point	.30	.31
15 pour point	.29	.30
25 pour point	.24	.28
200 vis. at 70° F., 3 color:		
Zero pour point	.33	.34
10 pour point	.32	.33
15 pour point	.31	.32
25 pour point	.26	.32

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.0650

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.0650
124-126 (A.m.p.) w.c. scale	.0650

NEW YORK—

Wax in bags fully refined:	
123-125 (A.m.p.) wax	.0505
125-127 (A.m.p.) wax	.0520
128-130 (A.m.p.) wax	.0560
130-132 (A.m.p.) wax	.0585
133-135 (A.m.p.) wax	.0615
135-137 (A.m.p.) wax	.0640
Crude scale:	
124-126 (A.m.p.) w.s.	.0600
124-126 (A.m.p.) y.s.	.0575
Petrolatum in barrels, carload lots:	
Dark green	.03½
Amber	.03⅞
Extra amber	.04
Lily white	.06½
Snow white	.07¼
Cream	.05½

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05	.05¼
60-62 400	.05½	.06
65 octane	.06¼	.06½
68 octane	.06¾	.07
70 octane	.07	.07½

LOS ANGELES—

U. S. Motor grades:		
60-65 octane	.05½	.05¾
65-69 octane	.05¾	.06¼
Above 69 octane	.06¼	.06½

KEROSENE

GULF COAST—

41-43 prime white		.05¼
41-43 water white		.05¼

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s.) in bbls.—

Cylinder stocks:		
600 S.R. unfiltered	.25	.26½
650 S.R. unfiltered	.27	.28½
600 flash, S.R.	.28	.30½
630 flash, S.R.	.30	.34
Bright stock:		
8 color	.40	.42

NEUTRAL OIL

200-3 color	.38	.43
150-3 color	.37	.40

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.	.0505
125-127 A.m.p.	.0650
128-130 A.m.p.	.0675
133-135 A.m.p.	.0750
135-137 A.m.p.	.0850
Crude scale:	
122-124 w.s.	.0600
124-126 w.s.	.0600
122-124 y.s.	.0575
124-126 y.s.	.0575

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1939 High	1939 Low	Week ended Nov. 25 High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1938	1937	1938 High	1938 Low	1937 High	1937 Low
74½	50	59	56½	56½	Amerada Corp.	788,675	N.P.	50cQ	10-31-39	$2.00	$2.07	$3.04	78	55	111⅞	51½
27⅞	18⅛	24⅛	22⅜	22⅜	Atlantic Refining	2,663,999	$25	25cQ	12-15-39	1.00	1.40	3.51	27⅜	17¾	37	18
21½	10¾	17	16	16	Barber Asphalt Co.	390,223	$10	25c	11-17-39	....	—.85	1.91	23¾	12½	43⅜	10½
19½	11⅛	14⅛	12¾	12¾	Barnsdall Oil Co.	2,250,344	$5	15c	12-9-39	1.00	1.26	.85	21⅜	10⅛	35¼	10
9⅞	6½	8	7⅝	7⅝	Consolidated Oil Corp.	13,751,846	N.P.	20cQ	11-15-39	.80	.55	1.48	10⅝	7	17⅞	7
31½	19⅞	25⅝	24½	24½	Continental Oil of Delaware	4,682,581	$5	25cQ	12-26-39	‖1.00	1.10	2.98	35⅜	21¼	49	24
9⅜	4½	6⅞	6¼	6¼	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	.83	.94	9⅜	5	17⅝	4¾
20¼	10	14⅜	12½	13	Lion Oil Refining	435,815	N.P.	25cQ	10-10-39	1.00	2.09	2.17	25⅛	15⅝	34	12½
18	11⅛	15⅞	14⅜	14⅜	Mid-Continent Petroleum	1,857,912	$10	35c	12-1-39	.60	.56	2.86	22⅝	12¼	35⅝	14
14⅞	8¾	10⅝	9⅞	10⅝	Mission Corporation	1,379,245	$10	40c	12-15-39	1.00	1.04	1.31	17⅜	10⅝	34	15
15½	5⅝	10½	9¼	9¾	National Supply	1,155,517	$10	....	12-22-37	....	—.79	4.90	23	12½	41⅝	17⅝
10½	6	7½	6⅞	7	Ohio Oil Co.	6,563,377	N.P.	20c	12-15-38	.20	.25	1.30	14⅞	8⅞	22⅞	8
11⅞	7⅝	8⅝	8½	8½	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	.50	1.22	1.39	15⅞	10¼	29⅜	11⅜
8⅜	5	7⅝	7¼	7¼	Pan American Pet. & Trans.	4,702,945	$5	....	12-21-37	....	.08	1.18	9¼	6¼	17⅛	7
46½	31¼	41½	39½	40⅞	Phillips Petroleum	4,449,052	N.P.	50cQ	12-1-39	‖2.00	2.03	5.42	44⅜	27¼	64	30½
24	17⅛	21⅞	21½	21⅝	Plymouth Oil Co.	1,006,200	$5	35cQ‡	12-31-39	1.40	2.59	2.85	25⅝	15	29⅞	13
11⅝	6⅛	9⅝	9	9	Pure Oil Co.	3,982,031	N.P.	25c	12-20-39	....	.38	2.15	13½	8¼	24⅝	8⅝
10¼	6⅝	9½	9	9	Richfield Oil Corp.	4,010,000	N.P.	50c	12-21-38	.50	.51	.35	9⅞	5	6½	4½
24⅜	15½	19⅜	19¼	19¼	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	12-15-39	1.00	1.52	1.97	27½	15½	54⅛	16
17¼	9⅞	13¾	13⅛	13¼	Shell Union Oil	13,070,625	N.P.	25c	7-20-39	.70	.72	1.44	18⅝	10	34⅜	14⅞
29½	15½	21½	19⅜	20	Skelly Oil	995,349	$15	25c	12-22-39	1.00	2.27	6.07	34⅝	18½	60⅝	26½
15⅛	10¼	13	12¾	12¾	Socony-Vacuum	31,206,071	$15	25cSA	9-15-39	.50	1.29	1.82	16⅜	10⅜	23¼	13
33⅝	24¼	26⅞	25⅝	25⅝	Standard Oil of California	13,004,153	N.P.	25cQ	12-15-39	1.40	2.22	3.17	34⅞	25⅛	50	27⅛
30	22⅝	27⅛	26	26⅛	Standard Oil (Indiana)	15,272,020	$25	50c†	12-15-39	1.00	1.82	3.66	35½	24⅝	50	26½
53½	38	47	45	45⅝	Standard Oil of New Jersey	26,618,065	$25	75c¶	12-15-39	$1.50	2.86	5.64	58⅝	39¾	76	42
66	45¾	60	59	60	Sun Oil	2,316,484	N.P.	25cQ	12-15-39	1.00	1.07	3.86	65⅛	45	77½	44½
3⅝	1⅝	2⅝	2¼	2⅝	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	.10	.24	.32	4¼	1⅝	7⅝	1½
50¾	32½	46⅞	45½	45½	Texas Corp.	10,876,882	$25	50cQ	10-2-39	2.00	2.13	5.02	49⅝	32⅝	65⅛	34⅜
5⅜	3¼	4⅛	4	4⅛	Texas Gulf Producing Co.	888,144	N.P.	10c	12-15-39	.15	.86	.68	5⅞	2⅝	9⅝	2
11⅝	7	9	8⅞	8⅞	Texas Pacific Coal & Oil	888,236	$10	10c	12-1-39	.40	1.16	1.11	12½	7	16⅝	5⅝
14¼	9½	11⅛	10⅝	10½	Tide Water Associated	6,375,253	$10	15c	12-1-39	1.00	1.28	2.08	15⅝	10⅛	21⅝	13¼
19¾	15⅛	17⅝	16⅞	16⅞	Union Oil of California	4,666,270	$25	25c	11-10-39	1.20	1.47	2.58	22½	17⅛	28⅛	17½
24¼	20⅛	23	22⅞	23	Union Tank Car Co.	1,177,381	N.P.	40c†	12-1-39	1.30	1.16	1.70	23½	20	31½	22
4¼	2⅝	3⅝	3½	3½	Wilcox Oil & Gas	487,568	$5	....	5-10-28	....	.52	.24	3½	1⅝	6¼	1⅝

†Includes extras. ‡Also 2 per cent in stock. §Also 1½ per cent stock dividend. ‖Also right to subscribe to bonds. ¶Also 1½ per cent in stock. —Deficit.

New York Curb Exchange

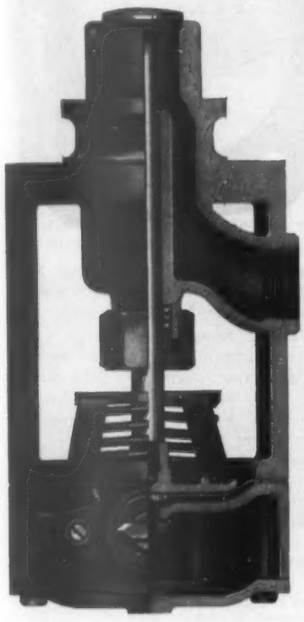
1939 High	1939 Low	Week ended Nov. 25 High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1938	1937	1938 High	1938 Low	1937 High	1937 Low
11⅝	5½	6⅝	6½	6½	American Republics Corp.	1,308,049	$10	10c	7-11-38	$0.10	—$0.22	$0.27	11⅝	5	10	6⅝
77	55	3⅛	3	3	Bridgeport Machine Co.	270,000	N.P.	$1.25	12-30-37	....	—.14	1.90	10¼	4⅞	21⅝	7
34⅜	26½	31⅜	29½	30	Buckeye Pipe Line Co.	200,000	$50	$1	12-15-39	2.00	2.36	4.02	39	22½	51½	36
130	110	119¼	119¼	119¼	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	12-18-39	6.50	5.32	6.73	128	97	112	95½
9¼	4½	5¼	4⅞	5	Cities Service (new)	3,704,067	$10	....	6-1-32	....	.23	1.02	11	5⅛	5⅝	1½
2¼	½	1⅜	1½	1½	Cosden Petroleum	462,551	$1	....	....	....	....	.19	2⅜	⅞	5½	1½
28	16¾	24⅝	22½	22½	Creole Petroleum	6,975,383	$5	50cSA†	12-15-39	1.00	1.64	1.61	27½	17½	38⅝	20¼
7⅛	3⅝	..	..	..	Darby Petroleum	351,390	$5	25cSA	1-15-39	.50	....	1.36	10¼	5½	18⅝	6½
2⅝	1½	2⅜	2⅜	2⅜	Derby Oil & Refining	263,162	N.P.	....	....	....	—.91	1.34	3½	1½	8⅝	2¼
22	15⅛	..	..	..	Eureka Pipe Line	50,000	$50	50c	11-1-39	3.00	—.37	—.12	31	16	47½	24½
45⅛	29¼	40½	39	39	Gulf Oil Corp.	9,076,202	$25	25cQ	12-15-39	1.00	1.43	3.51	46⅞	33	63½	33
71	52½	67½	66	66	Humble Oil & Refining	8,987,840	N.P.	62½c	12-16-39	3.00	3.95	5.22	72⅝	56	87	54⅞
17	11⅝	13⅝	12⅞	13	Imperial Oil of Canada	26,965,078	N.P.	37½c†	12-1-39	1.25	.96	.98	19½	14⅜	24¼	14½
7	5½	..	..	..	Indiana Pipe Line	300,000	$10	20c	11-15-39	.50	.47	1.03	9⅝	6	15	5⅞
27½	17½	20⅝	19⅝	20⅛	International Petroleum	14,324,088	N.P.	75c	12-1-39	2.50	1.98	....	31¼	21	39½	23½
3⅝	2⅛	2½	2⅜	2⅜	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	.10	.14	.17	5	2⅛	8⅝	2⅝
10½	7⅛	10⅛	9⅝	9⅝	Lone Star Gas	5,553,747	N.P.	30c	12-22-39	.60	.88	1.14	10⅝	6⅝	14⅛	5¼
7⅝	4	5½	4⅛	5½	Louisiana Land & Exp.	2,977,449	$1	5c	12-15-39	.45	.45	.58	9⅝	6½	15¼	6⅝
17	14½	15½	15½	15½	Margay Oil Corp.	149,943	N.P.	25cQ	10-10-39	1.00	2.28	3.26	24	16	33½	17
8⅝	6⅝	8⅛	7½	7½	Midwest Oil Co.	998,474	$10	45c	12-15-39	1.00	.93	1.14	9⅝	6⅝	14⅝	6¼
6	4⅞	6	5⅝	5⅝	Mountain Producers	1,593,584	$10	30cSA	12-15-39	.60	.62	.76	5⅝	4½	7⅞	4⅛
14	11¼	12⅞	12⅜	12⅝	National Fuel Gas	3,810,183	N.P.	25cQ	10-16-39	1.00	.84	.90	14⅝	11½	19½	12
9¼	7¼	9	8⅞	9	National Transit	509,000	$12.50	50c	12-15-39	.75	.88	1.19	9¼	6½	12½	7¼
1⅝	1½	1½	1⅝	1⅝	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	2⅜	1½	5	1⅛
5	4	5	5	5	New York Transit	100,000	$5	25c	10-14-39	.25	.16	.49	4½	3½	5⅝	3⅞
6	4½	5½	5½	5½	Northern Pipe Line	120,000	$10	15c	12-1-39	.35	.24	.78	6	4	12⅝	5⅝
7⅝	4	5⅝	5¼	5¼	Pantepec Oil	2,857,000	$1	....	....	....	....	....	7⅝	3½	9⅝	2⅝
5	1¼	3⅝	3½	3½	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.17	—.17	4½	1⅝	12⅝	2
3	1⅞	..	..	..	Ryan Consolidated	298,931	N.P.	....	....	....	.29	.46	4	2⅛	6½	2¼
4⅞	3½	..	..	..	Southern Pipe Line	100,000	$10	15cSA	9-1-39	.30	—.27	.85	5⅝	3¼	7¼	3⅞
40½	26⅝	40½	36⅝	39	South Penn Oil	1,000,000	$25	$1.87½Q†	12-15-39	1.75	1.44	4.64	39	28⅝	56	35
23	17	22½	22½	22½	Southwest Penna. Pipe Lines	35,000	$50	50cQ	10-2-39	2.00	—.41	.95	22¼	16½	42	20
19½	17¼	19½	18½	18½	Standard Oil of Kentucky	2,604,790	$10	55c†	12-15-39	1.25	1.45	1.60	18⅝	15	21⅛	14⅝
27⅜	17	27⅜	27¼	27¼	Standard Oil of Ohio	753,740	$25	75c†	12-15-39	1.00	1.81	3.67	22⅜	16¼	45	16
2⅝	1⅝	2⅛	2	2	Sunray Oil	2,007,076	$1	5c	12-20-39	.05	.23	.42	3⅛	2	4⅞	2
4	2⅝	3⅛	3⅛	3⅛	Texon Oil & Land	936,024	$2	10c	6-30-39	.60	.56	.51	5¼	3½	7⅝	2
6	2½	3	2⅞	3	Transwestern Oil Co.	750,000	$10	....	....	....	—.12	.48	7⅝	4⅛	13⅞	4⅝
3⅜	1⅝	2¼	2	2	United Gas Corp.	7,818,959	$1	....	....	....	—.51	.25	5¼	2⅝	13⅞	3

†Includes extras. ‡Payable in Canadian funds. —Deficit.

New or Improved Equipment

Substantial Savings Effected by Fuel-Miser Valve Assembly

J. H. Reynolds, president of Reynolds Manufacturing Co., Dallas, Tex., announces addition of the Fuel-Miser to the Remco line of oil-field specialties. The Remco Fuel-Miser is a valve assembly for the introduction of fuel gas through the head of two-cycle engines. Conspicuous are the principle of operation, simplicity of design, and compactness of the valve assembly. A poppet valve, the only moving part, is actuated by pressure from the scavenger end of the power cylinder through a diaphragm.

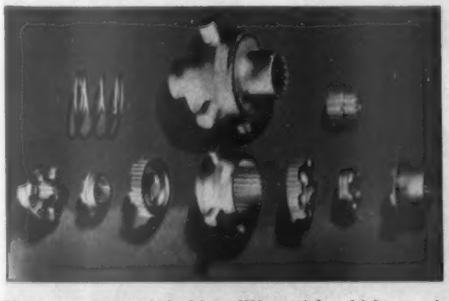


"The first cost of the Fuel-Miser," said Mr. Reynolds, "is repaid by its saving of fuel. Operating costs are lowered because the Fuel-Miser makes two-cylinder engines perform with maximum economy. Smooth and quiet in operation, its efficiency insures the development of any engine's full potential horsepower."

Installation is effected by bolting the Fuel-Miser valve assembly to the cylinder head, running the fuel pipe from the engine governor to the assembly, and running a quarter-inch pipe from the assembly to the scavenger end of the power cylinder.

Eliminates Spinning of Wheels on Uneven or Slippery Road

Thornton Tandem Co., of Detroit, Mich., manufacturer of the Thornton four-rear-wheel drive for trucks, has been developing and testing for 16 months the



Thornton automatic-locking differential, which now is offered to truck users and motor-truck producers. The Thornton differential is a self-contained package unit, interchangeable with standard axle differentials. The device is available for Chevrolet and Ford truck axles and models are being developed for other makes.

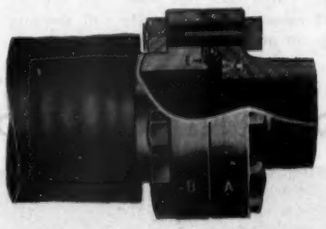
This differential eliminates wheel spinning under adverse operating conditions over uneven roads, or no roads, and around turns due to its automatic-locking principle. It is said to permit trucks to operate efficiently in sand, mud, snow, and on ice or wet pavements since both wheels must rotate when power is applied. The maximum possible tractive effort is obtained because each wheel contributes its full share of rim pull up to the limit of its tractional resistance.

Furthermore, with the conventional differential, where there is a loss of traction on one wheel, the ring gear, through the axle shafts, forces this wheel to increase its speed suddenly, the rim pull is reduced, and the vehicle loses momentum. When traction is regained, the speed of this wheel is reduced instantly to that of the other wheel, which imposes severe shock loads on the axle shafts and driving mechanism, with a corresponding sudden increase in rim pull and vehicular momentum. In a vehicle axle equipped with the Thornton automatic-locking differential operating under the same conditions, both wheels will continue to rotate at the same speed. Severe shock loads do not have an opportunity to develop, as there is no appreciable change in the vehicle's rim pull or momentum.

Some operators report substantial savings in fuel, oil, and tires. Another point of economy is the ability of trucks to maintain, with a greater degree of certainty, fixed operating schedules because of the improved truck performance and reduced road-service requirements. Elimination of wheel spinning improves stability and reduces the tendency to skid or jackknife.

Designed for Higher Pressure Than Any Found in Drilling

A new Grizzly pressure-seal rotary hose, without nipples and with a positive pressure-seal coupling built integrally with the hose body, has been announced by E. M. Smith Co., Los Angeles, Calif. According to the manufacturer, the hose is designed to withstand higher pressures than any encountered in drilling wells to any depth, without the hazard of leakage or blowouts around the coupling. The coupling is compact, light in weight, and incorporates a new method of sealing off the fluid by means of the pressure within the hose. As will be noted in the illustration, seepage of the fluid into the clearance between the coupling flange and adapter at *A* and *B* forces the specially designed terminal of hose body *C* firmly against the solid wall of the adapter at *D* and into the recess in flange *E*, thus forming a positive seal at pressures that are practically nil. Assembly of the adapter to coupling flange is steel to steel, with sufficient clearance at *A* and *B* to eliminate any possibility of pinching or otherwise damaging the hose.



The adapter is made of steel with an extra-thick wall, insuring less danger of cutting out and assuring much longer life. Both the adapter and flange are machined to precision fit, securely bolted together, and never require tightening when in service. Full opening throughout the entire length of the hose gives unobstructed flow at all times.

Patterson Buys Tulsa Concern

Patterson Steel Co., Tulsa, according to N. R. Patterson, president, has purchased all machinery, equipment, patterns, and templates of Tulsa Sheet Metal Co. The latter company manufactures cooling troughs, fire doors, ventilators, machine guards, skylights, spouting, gutters, cornice work, flashing, valleys, gasometer cans, dust collectors, switch boxes, jackets, and breechings. The Patterson company will continue to feature the Byrne ventilator and other sheet-metal specialties and custom work essential to the petroleum industry. Acquisition of the sheet-metal plant increases Patterson's facilities for furnishing sectional steel buildings and other building specialties.

Jones Now Making and Selling Jones-Staggs Intermitters

The Jones-Staggs intermitter is to be manufactured by S. M. Jones Co., Toledo, Ohio, and Tulsa. P. C. Jones, president, has announced purchase of exclusive manu-

facturing and sales rights of the H. M. Staggs patents for a surface-controlled gas-lift intermitter. Mr. Jones pointed out that this new interest is in line with the company's policy of confining its activities to specialization in artificial oil-lifting problems. The company's diversified field-engineering experience has established the possibities for a simple, efficient gas-lift intermitter that will allow complete gas production of wells from the semiagitation stage to ultimate depletion.

"Fitting production methods to operating conditions is as definitely an interest of the S. M. Jones Co. as is proper sucker-rod selection," said Mr. Jones. "It will be the effort of the company to recommend gas-lift or sucker-rod installations, depending upon the operating factors of the wells."

The Jones-Staggs intermitter is said to be a proved and developed product with numerous installations under a variety of operating conditions in different fields. These installations are said to have shown the soundness of this method of production, effecting extremely low gas-oil ratios under procedures easily adapted to current oil-field practices.

Louis Allis Widens Service

Louis Allis Co., Milwaukee, Wis., has expanded its sales representation and service facilities to include T. D. Williamson and T. D. Williamson, Jr., Petroleum

T. D. WILLIAMSON *T. D. WILLIAMSON, JR.*
W. WOOBANK

Engineering & Equipment Co., 608 South Boston Avenue, Tulsa, as agents, and W. Woobank, Electric Motor Co., 215B East Archer Street, Tulsa, as distributor.

Ease of Moving and Handling Is Feature of Lincoln Welder

A new 200-amp. engine-driven arc welder, exceptional in its light weight and small size, is announced by Lincoln Electric Co., Cleveland, Ohio. The SAE-200 J is of the junior type and it is said to afford a new experience in moving and handling engine-driven welding equipment. It is light enough to be wheeled readily by one man, or lifted easily on its single balancing hook by average moderate-capacity chain or crane falls. The weight is under 900 lb.

Ease of moving and handling is further enhanced by its size, which also shows to advantage in the matter of floor space. Dimensions, stationary model, are: Length, over radiator grille 56 in., over hand crank 63⅞ in.; width 20¼ in.; height 37¼ in. The portable model (shop type) is of the same length as the stationary type and 27½ in. wide (wheel clearance) by 44½ in. high. Floor space required for the stationary model is only 8 sq. ft.

The SAE-200 J meets requirements for a wide range of applications for direct-current arc welding. It welds light-gage metal by the metallic arc process; also car fenders, bodies, and galvanized sheet by the carbon arc method; repairs cast iron parts, such as cylinder heads and blocks; fabricates a wide variety of equipment; does hard facing; and is effective in countless other applications. It produces a uniform current for speedy welding of practically all metals and alloys with either bare or shielded-arc-type electrodes.

Here and There With Men Who Manufacture Equipment

Bethlehem International Supply Co. is opening a new store in Grayville, Ill., with M. L. Creed as manager and C. T. Cox as field salesman. They are under the direction of District Manager John Ihrig, whose headquarters are in Salem.

Present officers of the Meehanite Research Institute of America, Inc., were reelected at the annual meeting, including O. Smalley, president; H. B. Hanley, vice president; F. M. Robbins, secretary-treasurer.

Hewitt Rubber Corp., Buffalo, N. Y., has appointed distributors, including Machinery & Supplies Co., Kansas City, Mo., and Texas Belting & Supply Co., Houston, Tex.

George F. Bauer, Jr., has joined the sales staff of Petroleum Engineering & Equipment Co., 608 South Boston Avenue, Tulsa. Thomas B. Young has joined the company as sales engineer for Oklahoma.

Allis-Chalmers Tractor Is Built Specially for Industrial Jobs

A new industrial tractor, the Model IB, has been introduced by the Allis-Chalmers Manufacturing Co., Milwaukee, Wis. The IB is specifically designed as an industrial tractor and is built low, short, compact, and powerful to handle all types of industrial work.

With 13.5 drawbar hp., and weighing 2,140 lb., this versatile unit is said to speed up hauling operations and cut material-handling costs on scores of jobs. Because the IB sets low on the ground, it has the stability to haul up and down inclined ramps without tipping. It has both foot brake and individual hand brakes on the rear wheels to facilitate maneuvering in cramped quarters. With three forward speeds and a reverse, moving and hauling jobs will be speeded up.

For power the IB has the 18-hp. heavy-duty, medium-speed tractor engine that has been proved in over 28,000 Model B tractors. This husky valve-in-head engine has removable cylinder liners, a foot-controlled governor, and is protected by oil, air and fuel filters. Although the tractor develops 13.5 hp. at the drawbar, fuel consumption is said to be less than 1 gal. per hour.

Gordon and Payte Advanced

R. W. Gordon, division sales manager for National Supply Co.'s organization in Tulsa, will be transferred to Fort Worth early in December to become manager

R. W. GORDON *D. F. PAYTE*

of the Texas division. D. F. Payte, assistant division sales manager in Tulsa, will succeed Mr. Gordon as sales manager in the Mid-Continent area.

The two promotions result from the retirement from active service on January 1 of C. C. Cartwright, vice president of National's interests in the Texas, New Mexico, and Louisiana territory, with headquarters in Fort Worth. Mr. Cartwright has been with the National Supply 37 consecutive years. He will continue his affiliation in an advisory capacity.

New Taylor Controller Offers Automatic Reset Inside Case

The new Taylor air-operated Fulscope controller makes available in one instrument the advantages of conventional control and automatic reset, along with new features that promise better all-round performance under the difficult operating conditions encountered in refineries and gasoline plants.

Introduced by Taylor Instrument Companies, of Rochester, N. Y., this Fulscope controller offers automatic reset inside the case with wider range of adjustments. Maximum ease in making adjustments is said to be assured by a magnified dial, calibrated in absolute units.

The instrument can be changed from direct to reverse acting in the field with no change of mechanism. Precalibrated actuating systems are available, as always, and easier to install. The universal case for face or flush mounting is drilled and tapped to accommodate the simplest or the most complex form of control. Conversion from one form of control to anther is easily effected in the field by the addition or substitution of unit assemblies. Consistent performance throughout the entire sensitivity range is said to be assured because of completely pneumatic sensitivity reduction. The relation between pointer movement and output pressure is so linear that the instrument may be used as a remote transmitter.

REED ROLLER BIT CO. EMPLOYES HONOR R. G. HAMAKER

A surprise birthday party was given recently for R. G. Hamaker, vice president and sales manager of Reed Roller Bit Co. in the sales conference room at the Reed plant in Houston, Tex. Present were H. E. Estes, Jack Knight, L. T. Anderson, Harvey Ledlow, Harry Heller, Charlie Fontaine, Beverly Page, K. W. Michael, E. H. Becker, J. C. Stokes, F. C. Gignoux, George Schunior, H. C. Tooley, Harper Black, G. G. Harrington, Lubin Borne, H. M. Conway, John Butler, and Earl Rives.

"Impossible" Tank Welding Job Is Now Standard Practice

Oil-storage tanks are usually completed and painted before the photographer is called, but in this case the camera man caught some big ones in process. Bradford

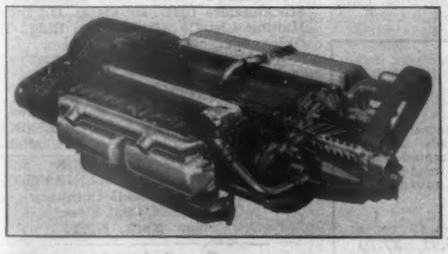
Transit Co. recently let a contract to Lauffenberger Erection Co., Bradford, Pa., for the building of four all-welded oil-storage tanks of 50,000 bbl. capacity each, in Foster Brook, Pa.

In one view the bottom of the first tank is laid and a piece of the first course of shell plating is being set in place. It is only a few years since the welding of vertical shells for these mammoth tanks was consid-

ered impossible. Today it is a standardized erection method. The other view shows No. 3 tank nearly complete, in the rear, and No. 4, in the foreground, about ready for the roof plates. Approximately 4,000 lb. of electrode was used on this job and not a single leak or other defect was experienced. The pictures are published by courtesy of Wilson Welder & Metals Co., Inc.

Hercules Adds "Pancake" to Its Line of High-Speed Diesels

Hercules Motors Corp. of Canton, Ohio, has added the DFX series to its line of high-speed, heavy-duty engines. These engines, of horizontal or "pancake"



design, were developed primarily for applications wherein limited space requires engines of minimum height. While differing in general design from the well-known Hercules vertical engines, these heavy-duty models are of relatively light weight. The internal dimensions of the DFX series of six-cylinder diesels follow:

Model—	Bore (in.)	Stroke (in.)	Displacement (cu. in.)
DFXB	5	6	707
DFXC	5¼	6	779
DFXD	5½	6	855

Model DFXB develops 176 hp. at 1,800 r.p.m. and has a maximum torque of 530 at 1,300 r.p.m. Model DFXC develops 191 hp. at 1,800 r.p.m. and has a maximum torque of 535 at 1,300 r.p.m. Model DFXD develops 193 hp. at 1,600 r.p.m. and has a maximum torque of 645 at 1,300 r.p.m.

Oil capacity is exceptionally large, due to the use of an oil tank built directly into the oil pan. A scavenging pump keeps the sump of the engine dry and delivers all the oil into the tank from which the pressure-lubricating oil pump draws its supply through a screen of large area. The oil is delivered through a Nugent-type lubricating-oil filter into the main header line of the engine, from where the different bearings and surfaces are supplied ample lubricant.

Trade Literature

BAILEY METER CO., 1050 Ivanhoe Road, Cleveland, Ohio.—Bulletin 210, Bailey flame detector.

FISHER GOVERNOR CO., Marshalltown, Iowa.—Complete catalog for the gas industry.

PRECISION SCIENTIFIC CO., 1750 North Springfield Avenue, Chicago.—Bulletin 305, discussion of heat transfer.

UNION CARBIDE AND CARBON CORP., 30 East Forty-second Street, New York.—Booklet, "Fine Chemicals."

NATIONAL PRODUCTION CO., 4561 St. Jean Avenue, Detroit, Mich.—Bulletin, Safe-Line wire-rope clamp.

B. F. GOODRICH CO., Akron, Ohio.—Two 8-page catalog sections, one on "Bus and Diesel Batteries" and the other on "Truck Batteries."

GEO. P. REINTJES CO., 2517 Jefferson Street, Kansas City, Mo.—Bulletin discussing why solid boiler and furnace walls "are coming down."

ALLIS-CHALMERS MANUFACTURING CO., Milwaukee, Wis.—28-page booklet, B-6029, containing data on Lo-Maintenance motors and Texrope drives.

LANDIS MACHINE CO., INC., Waynesboro, Pa.—Bulletin E-88-1, Landis 4-spindle semiautomatic threading machine.

McKAY CO., Pittsburgh, Pa.—Bulletin, shielded-arc welding electrodes.

BASTIAN-BLESSING CO., 242 East Ontario Street, Chicago.—Rego welding and cutting catalog.

STAR DRILLING MACHINE CO., Akron, Ohio.—16-page booklet, No. 71 Speed Star.

D. W. HAERING & CO., INC., 2308 South Winchester Avenue, Chicago.—Third edition of booklet, "Organic Methods of Scale and Corrosion Control."

BINKS MANUFACTURING CO., 3114 Carroll Avenue, Chicago.—Catalog 75, spray painting and finishing equipment.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., Department 7-N-20, East Pittsburgh, Pa.—Catalog 30-000, helps in selecting right equipment for motor or lighting circuit.

GUSTAV WIEDEKE CO., Dayton, Ohio.—Bulletin, Ideal adjustable condenser expanders.

DURALOY CO., Scottdale, Pa.—Bulletin, special alloys for refineries.

BAKER OIL TOOLS, INC., Huntington Park, Calif.—Current issue Cement Retailer News Service, discussing Multiple-batch cementing.

AMERICAN MANGANESE STEEL DIVISION, AMERICAN BRAKE SHOE & FOUNDRY CO., 370 East Fourteenth Street, Chicago.—Current issue the Amsco Bulletin.

LUMMUS CO., 420 Lexington Avenue, New York.—Bulletin R4, petroleum refining equipment.

ROCKWOOD SPRINKLER CO., 38 Harlow Street, Worcester, Mass.—Circular, three types of Rockwood unions.

WORTHINGTON PUMP & MACHINERY CORP., Harrison, N. J.—Three bulletins: (1) Balanced Monobloc; (2) Unibloc gas-engine compressors; (3) vertical 4-cycle totally enclosed gas engines.

AMERICAN LEATHER BELTING ASSOCIATION, 100 Gold Street, New York.—Data book, automatic tension-control short-center pivoted-motor leather-belt drives.

RUBBER CHEMICALS DIVISION, E. I. DU PONT DE NEMOURS & CO., Wilmington, Del.—Current issue the Neoprene Notebook.

INTERNATIONAL NICKEL CO., 67 Wall Street, New York.—Current issue Nickel Cast Iron News.

B. F. GOODRICH CO., Akron, Ohio.—Four-page catalog section on Acidseal paints, derived from rubber.

GENERAL ELECTRIC CO., Schenectady, N. Y.—Bulletin GEA-2022C, Diactor generator-voltage regulators, Type GDA.

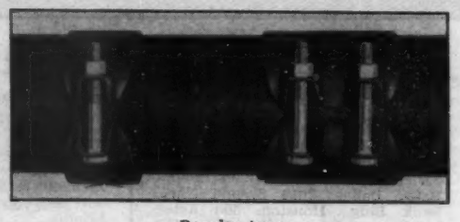
NELSON CHEMICAL PUMPS, Box 2235, Casper, Wyo.—Bulletin, Nelson field-engineered chemical proportioning pumps.

C. A. ROBERTS CO., 20 South Aberdeen Street, Chicago.—Bulletin, Shelby tubing.

PHILADELPHIA GEAR WORKS, Erie Avenue and G Street, Philadelphia, Pa.—64-page catalog, single, double, and triple-reduction herringbone speed-reducing units.

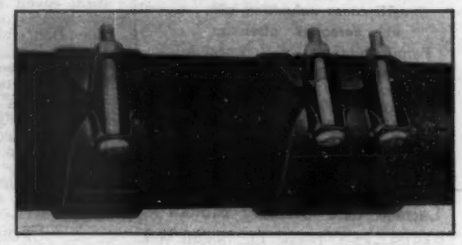
Perforated-Type Skinner-Seal Economy Clamp Now Offered

M. B. Skinner Co., South Bend, Ind., maker of a complete line of pipe-leak repair clamps, announces that hereafter the company's pressed-steel Economy



Regular type

clamp will be available with perforations in the gasket half to facilitate the process of welding this on as a patch.



New perforated type

The Skinner-Seal pressed-steel Economy clamp, regular type, is furnished in narrow width (3½ in.) with rubber cone plug riveted in, for repair of pit holes, and in double width (6½ in.) with strip gasket, for running corrosion spots.

The new perforated-type of pressed-steel Economy clamp is available on order. The half clamp containing the gasket is perforated, so that after the sides are welded the lugs may be broken off to simplify completing the weld.

Dia-Loy Sucker-Rod Protector Reduces Wear and Parting

The Dia-Loy sucker-rod protector, manufactured by Dia-Loy Co., 101 North Alameda Avenue, Burbank, Calif., consists of a ring of special alloy, the same material that is used in Dia-Loy sucker-rod couplings. The ring is split into halves which are applied to the sucker rod in any desired location and are held in place securely by babbitting to the rod. The protector may be applied at any point on the sucker rod, and as many protectors as are necessary may be used.

In addition to preventing rod wear and subsequent parting, the protector serves as a stabilizer to reduce vibration and resulting crystalization in the rod. On fully equipped rod strings the highly polished bearing surface of Dia-Loy not only gives protection to the tubing and rods, but reduces the friction load, which means a large saving in power and less rod breakage. Cuttings, caused by wear of tubing, rods, and couplings which fall into the pump, are said to be practically eliminated by the use of Dia-Loy protectors and couplings. The Mid-Continent representative of Dia-Loy is Charles A. Russell, Box 1044, Houston, Tex.

"Wrought Iron" Handbook Revised

A. M. Byers Co., Pittsburgh, Pa., has published a revised edition of its handbook, "Wrought Iron." This 100-page work has been completely rewritten, and several chapters have been added. The handbook, published first in 1936 as a reference work for engineering organizations, has become a standard engineering text in more than 100 technical schools and colleges.

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas; 2014 Second Nat'l. Bank Bldg., Houston. 506 Aztec building, San Antonio, Tex. 457 Munsey Building, Washington, D. C. Address any of these offices.

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Patent Law Offices
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Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

BROKERS and SALESMEN
only
A complete SERVICE EXPERTS in every department of the Oil Business at your SERVICE a REAL SET-UP. The best opportunity ever offered you. Leases in large or small lots at
WHOLESALE PRICES
Write today and get started right.
OIL BROKERS EXCHANGE
200 Don Juan Bldg., Santa Fe, N. M.

SACRIFICE 40-acre Oil Lease, Chaves County, for only $10.00, full price. Guarantee title. P. O. Box 191, Clovis, N. Mex.

NEW MEXICO WEEKLY OIL SCOUT REPORT.—Send for sample copy. Roy G. Barton, Box 968, Hobbs, N. M.

WANT CAPITAL to invest in perpetual mineral rights in North Permian Basin in Texas and New Mexico in major company blocks on geophysical highs. Rapid development under way now. Will take interest after all monies have been repaid. Address Box J-990, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE Oil and gas leases and small production located in Kentucky shallow field, and leases located in Clay County, Tenn. Have for sale two tracts of proven Fluorspar and Zinc deposits; reports furnished on request. W. P. Harley, Bowling Green, Kentucky.

MISSISSIPPI THE NEW OIL STATE Leases, royalties and drilling blocks apply J. P. Fraim, Edwards Hotel, Jackson, Miss.

FOR Lease 400 acres in Mound Township, Effingham County in Sec. Four and Five. Four miles from St. Elmo and Bucher City Oil fields. E. R. Stroud, Altamount, Illinois.

LIMA Ohio Oil fields should have deep well play, for productive oil basin. Correspondence solicited. JULES BARND, Faurot Building, Lima, Ohio.

DRILLING BLOCKS wanted any State. Pro-rated territory excluded. Box 165, Chicago, Illinois.

EAST TEXAS Trinity sand wildcats will drill shortly Humble, Shell and Texas company blocks afford chance quick money. Leases-Royalties. E. CROFT, PROCTOR, TEXAS.

NEW MEXICO
STATE OIL AND GAS LEASES
Buy on known structures where major companies own leases. 50c per acre. 5c rentals. Write for information.
HARRY S. WRIGHT, STATE LESSEE
Wright Building
FARMINGTON, NEW MEXICO

FOREST CITY Basin leases near new oil strikes, McLouth and Fall City. Margaret Haynes, N. Topeka, Kans., R #3.

Leases and Drilling Blocks

WANTED offset or proven acreage for immediate development. Full details first letter necessary. Address Box K-371, The Oil and Gas Journal, Tulsa, Oklahoma.

500 ACRES in Clay County, 1500 acres in Hardin County. Want McClosky test in each block. 5000 acres in Pulaski County, will sell outright. Leo H. Graves, Farina, Illinois.

OPERATOR will sell a few sixteenths in a drilling well at $100.00 per 1/16, about the cost of the contract. The geology worked out by one of the best geologists in the country. To prove this statement seven wells have been drilled and were seven producers on this structure on the west side. I want to drill the east side. Had gas in the Dutcher, oil in Mississippi. Tyner and Arbuckle produced 5 M gas. Pipe Line for oil and gas on the lease. Laurence Price, Coweta, Oklahoma.

BROKERS—INDIVIDUAL INVESTORS: Have large gas and oil water flooding projects uncovered in Eastern Kansas. Will develop and contract proven areas some already producing properties. Splendid income investments. Details involving investments from $1,500 to $25,000 submitted. Gene C. Helm, Paola, Kansas.

FOREST CITY BASIN
I have drilling block covering a shallow gas field in North East Kansas. Want producing oil company drill Arbuckle test, around 2200 ft. J. E. Leader, Topeka, Kans.

PROMOTION OFFER
We will give free, liberal acreage in the proven field of Russell County, Kansas, for drilling agreements.
AMERICAN INVESTMENT CORP.
RUSSELL, KANSAS.

LOUISIANA Leases. 320 to 15,000 acres. Concordia-Catahoula-La Salle Parishes. C. W. Deming, Reg. Dealer, Waycross, Ga.

FOR SALE LEASES in Sharkey County, Mississippi. Box 2701, Memphis, Tennessee.

FOR SALE or lease: 2000 acres in Southern Illinois. Address F. N. ALBERTSEN, Perkin, Illinois, for details.

OKLAHOMA OIL CONNECTION
Want man with cash and guts enough to come to Okla. City, get and drill 100% shallow available leases. No mail deals, no promotions, no brokerage. Address Box K-381, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED financially responsible party interested in drilling 15000-acre block northeast Colorado. First National Bank, Fleming, Colorado.

Leases and Drilling Blocks

WANTED—Party to drill on 1400 acres completely surrounded by oil wells; no failures near; Butler County, Kansas. Will lease; no bonus. Arthur Nickell, Fayette, Missouri.

Situations Wanted

BUSINESS MANAGER for independent oil company or Drilling Contractor. Considerable experience in leasing, acquiring contracts, financing, and business administration. P. O. Box 66, Sta. A, Los Angeles, California.

EXPERIENCED man, wholesale and retail marketing, wishes connection with marketer or as refinery sales representative. Southern territory preferred. Address Box K-382, The Oil and Gas Journal, Tulsa, Oklahoma.

MANUFACTURERS REPRESENTATIVE An experienced and well acquainted salesman desires additional lines to sell, in Mid-Continent Area. Commission or Salary. Box K-291, The Oil and Gas Journal. Tulsa, Oklahoma.

REFINERY DESIGNING ENGINEER, 17 years' experience. Desires change. At present employed, Chief draftsman major oil company. Address Box K-380, The Oil and Gas Journal, Tulsa, Oklahoma.

Help Wanted

SALESMAN in each settled production area. Sideline. Good thing. Eclipse Chemical Co., Box 2603, Tulsa, Oklahoma.

SALESMEN, experienced in oil field work preferable with knowledge of cable tool drilling equipment, for Middle West and Mid-Continent territory. Give full particulars in first letter. The Star Drilling Machine Co., Akron, Ohio.

WANTED—Young salesman on Commission to sell Packings and Specialties to Oil—and Power Plants in Oklahoma and Texas. Charles E. Strong, Electric-Asbestos-Rubber Co., Amityville, New York.

Survey Service

REMEMBER EAST TEXAS
When all other methods fail, employ my divining or dowsing method. If oil exists this methods finds it. Faults, broken, treacherous areas accurately defined. Our Watson #2, first producer Wilmington, Calif. field, located by this method. More reliable than mechanical geophysics. Ask any unbiased oil authority. Many years' experience. A wise man investigates George Miller, 1548 Post, Torrance, Calif.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

WILL BUY Producing West Texas and New Mexico Royalties. Oscar L. Grimes, Tulsa Loan Building, Tulsa, Oklahoma.

PRODUCING royalty investments wanted. Sebago Oil Co., 719 McBirney Bldg., Tulsa, Oklahoma.

WE BUY AND SELL
PRODUCING AND
NON-PRODUCING ROYALTIES
We invite inquiries from dealers who are looking for royalties with exceptional value. (All offerings meet requirements of the Securities & Exchange Commission.)
CHESTER IMES
Tulsa Loan Bldg., Tulsa, Oklahoma

Legal Blanks

SINCE 1908 Burkhart's legal forms—servicing Mid-Cont. oil fields, including Ill., La., Mo., Ind. & Ky. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So. Cinn., Tulsa, Oklahoma.

Mailing Lists

ROYALTY Lists. Oil Investor Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

Financing

CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

CORPORATE ORGANIZING and FINANCING—RE-ORGANIZATIONS
Brown Hartwell Company
110 East 42nd Street
New York, N. Y.

For Sale—Maps

TEXAS and NEW MEXICO
UP-TO-DATE OIL DEVELOPMENT MAPS
Zingery Oil Map Co., Fort Worth, Tex.

R. B. ROBINSON MAPS
Jackson, Miss. 3-Hart Bldg., Across Street from Heidelberg Hotel. Ownership maps of Yazoo and forty other Mississippi counties.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

If we do not maintain a classification exactly suited to the type of advertisement you wish to run we shall be glad to create a fitting one.

Classified Department

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30	*7 Lines*	$2.45	$4.20	$5.95	$7.70
4 Lines	1.40	2.40	3.40	4.40	*8 Lines*	8.80	4.80	6.80	8.80
5 Lines	1.75	3.00	4.25	5.50	*9 Lines*	3.15	5.40	7.65	9.90
6 Lines	2.10	3.60	5.10	6.60	*10 Lines*	3.50	6.00	8.50	11.00

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes

1 Inch	*1 time*	$5.00
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

CLASSIFIED ADVERTISING

For Sale—Equipment **For Sale—Equipment** **For Sale—Equipment**

REFINERY EQUIPMENT—UNITED REFINERY

COMPLETE 3,000 BBL. SKIMMING PLANT — RUSSELL, KANSAS

Foster-Wheeler Fractionating Column — 6'6"IDx72' high. New Taylor Instruments throughout. Heat Exchangers, Hot Oil Pump Steam Engine Driven, Two Pipe Stills. 1 - 3" Tubes — 1 - 2½" Tubes.

WILL SELL ALL OR ANY PART

WIRE — PHONE — WRITE

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba,
Riverview at Second, Kansas City, Kansas

Robt. W. Duden,
2100 S. Union, Tulsa, Oklahoma

EMERGENCY NEED?

Freight Cars; any kind
Locomotives; all types
Relaying Rails
Freight Car Repair Parts
Perhaps *we* can supply your requirements, and *immediately?*
OTHER MACHINERY and EQUIPMENT, TOO!

IRON & STEEL PRODUCTS, INC.
13412 S. Brainard Ave., Chicago, Ill.
"Anything containing IRON or STEEL"

FOR SALE—Two excellent used B-K Pipe threading machines, 1" to 4" and 4" to 10", complete set of dies, A.P.I. Specifications. Die Grinding Machine included. Berry Pipe & Supply Co., McBirney Bldg., Tulsa, Oklahoma.

ENGINE Bargains including 15 and 20 HP Fairbanks-Morse Oil Engines; 25 and 40 HP Tips Oil Engines; used and rebuilt. Write Tips Engine Works, Austin, Texas.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

FOR SALE — 6 miles 5⅜" seamless tubes, 10#, No. 1, 15c. 10,000 ft. 4½ o.d. seamless tubes, 10#, No. 1, 15c in pile. 2,500 ft. 4 o.d. extra heavy strictly No. 1. 12½#, 15c in pile. 4,500 ft. 4 o.d. tubes, 7½#, No. 1, 10c in pile.
M. J. REGAN,
Coffeyville, Kansas

FOR SALE
POWER HOUSE EQUIPMENT
3—550 HP 5 cylinder Nordbery Diesel Engines direct connected to 400 KVA Burke Generators. Must develop quick sale. If interested write, BETHLEHEM SUPPLY CORP., Box 2171, Tulsa, Okla.

REFINERY FOR SALE—complete 3000-bbl. refinery, cracking and skimming plant, practically new, dismantled and ready for shipping, at sacrifice price. Louisiana Iron and Supply Co., Phone LD 21, Longview, Texas.

FOR SALE
10,000 Ft. of 6" Pipe
25,000 Ft. of 2"
10,000 Ft. of 2½"
20,000 Ft. of 4"
35,000 Ft. of 3"
10,000 Ft. of 8"
All threaded and collared line pipe strictly No. 1 which is located in Shreveport, Louisiana.
We have also 30,000 Ft. of 6" screw line pipe in Oklahoma and 10,000 Ft. of 8" in Missouri.
Wire, Write or Phone for Prices
Louisiana Iron & Supply Co.
Shreveport, Louisiana

LINE PIPE FOR SALE AT BARGAIN
15,000 feet plain end 13# 6⅝" OD USED LINE PIPE. Located near Kincaid, Kansas. If interested write Box 2451, Tulsa, Oklahoma, or phone or write J. Kornfeld, Wichita, Kansas.

FOR SALE—$80,000.00 Rotary Rig complete. 10-in. Emsco Unit, 125-350 Boilers, etc. Practically new. Bargain. Roberts Bros., Box 1322, Shreveport, La.

FOR SALE: Complete absorption gasoline plant, capacity 3,000,000 cu. ft. of gas per day. Equipped with 3 85-HP Twin Bessemer and 2 80-HP Clark Bros. Engines. Ingersoll-Rand and Clark compressors and pumps. Good condition. Box 847, Blackwell, Oklahoma.

FOR SALE — complete standard cable tools—94 ft. Steel Angle Iron Emsco Heavy Duty Drilling Rig—new lumber and timbers—chain driven sand reel, 125 H.P., D-13000 Caterpillar full Diesel Engine, O.C.S. Reversible Clutch, V-Belt Driven—both engine and clutch mounted on steel substructure, practically new. Can be seen now drilling three miles from Ohiowa, Nebraska, Fillmore County. Reason for selling—dissolving partnership. Wire 414 Brown Building or phone 4-2121, Wichita, Kansas.

WE OFFER—STEEL DERRICKS
Fresh Painted—Excellent condition.
We still have a few left.
WERTZBERGER DERRICK CO.
P. O. Box 796
Tulsa, Oklahoma

Equipment Wanted

USED submergible Electrical Centrifugal Oilwell Pump. 7 or 10 HP with cable for 6⅝" casing. State Price and Condition. J. Campbell, Spring Lake, Michigan.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Ranches—Farm Land

RANCHES and FARMS
Oklahoma, Texas, New Mexico; New low bargain prices—mountains or plains. Howard Ingram, Perrine Building, Oklahoma City, Oklahoma.

Rocky Mountain Runs

Production estimates for week ended November 25:

WYOMING

	Bbl.
Salt Creek	15,500
Big Muddy	1,190
Badger basin	130
Byron	1,520
Cody dome	60
Cole Creek	50
Dallas Derby	580
Dewey dome	10
Dutton Creek	30
Elk basin	630
Frannie	3,490
Garland	2,540
Grass Creek	1,780
Hidden dome	70
Hudson	240
Iron Creek	10
La Barge	1,080
Lance Creek	22,280
Lost Soldier	1,640
Mahoney	350
Medicine Bow	1,390
Mule Creek	190
Oregon basin	3,220
Osage	600
Quealy	500
Rock River	2,450
Teapot	20
Warm Springs	140
Wertz	3,610
Total Wyoming	65,300

MONTANA

Border	210
Cat Creek	490
Cut Bank	9,790
Dry Creek	680
Kevin-Sunburst	4,550
Pondera	850
Total Montana	16,570

NEW MEXICO

Cooper	3,960
Eaves	830
West Eunice	290
Eunice	21,140
Hardy	3,750
Hobbs	10,540
Jal	550
Langlie	5,140
Lynch	470
Lynn	920
Mattix	5,350
Monument	22,100
North Lynch	30
Penrose	5,290
Rhoades	110
Skaggs	90
Skelly	1,850
South Eunice	4,120
South Lovington	1,150
Vacuum	11,700
Loco Hills	780
Artesia-Maljamar	11,770
Getty	100
Hogback	200
Rattlesnake	700
Table Mesa	100
Halfway	50
Total New Mexico	113,080

COLORADO

Florence	140
Fort Collins and Wellington	370
Wilson Creek	460
Iles dome	1,770
Moffat	290
Rangely	90
Tow Creek	130
Price	510
Total Colorado	3,760
Total Rocky Mountain region	198,710

Gulf Coast Markets

(Continued from Page 119)

pressing stock situation continues a dominating factor in the coastal market. Although further backing of material on the Gulf Coast was evident the past week, no attempts were made to sell below the prevailing quotations.

Fuel and other heavy oils so far have failed to react to the prospect of increased competition of foreign oils as a result of the reduction of import duties for favored nations that becomes effective December 16. If there is to be any weakening in the fuel-oil market situation, there was no evidence of it during the week. Buyers continued to order out material in substantial volume, with sellers having little left for immediate shipment on the open market. Gulf Coast sellers now are of the opinion that the present market will readily absorb any additional imports that might be brought in under the lower duties.

Buyers still are having difficulty in filling orders for coastal lubricating oils. The shortage of material was indicated the past week in efforts of one of the major refining and marketing companies to obtain additional supplies, although it has extensive lubricating oil manufacturing facilities of its own. Increased inquiries from other sources also were reported although many of these were traced to buyers trying to feel out the market for information. A puzzling situation is being created, however, in that sellers still are unable to place their fingers on just where the demand is or where the oil is going. Except for a short period at the opening of the war there has been practically no export movement, and domestic consumption is not reported much larger than usual. Prices of several grades strengthened during the week.

Canadian Imports

OTTAWA, Ont.—Excluding axle grease, vaseline and similar preparations, paraffin wax, wax candles, petroleum coke and asphaltum, Canada's imports of petroleum and its derivatives in the first 9 months of 1939 totaled 30,809,662 bbl. valued at $41,555,659. At the same rate, imports for the year are estimated at 41,079,549 bbl. valued at $55,407,545.

This compares with a total for 1938 of $59,263,625 in value, the 1938 imports including 38,651,975 bbl. of crude. Domestic consumption in the same period was approximately 7,000,000 bbl. valued around $11,000,000.

Canadian Gasoline

OTTAWA, Ont.—Canadian imports of gasoline lighter than .8236 gravity in August totaled 6,631,596 gal. valued at $491,234 compared with 6,545,611 gal. valued at $458,861 in July. Imports of natural casinghead, compression or absorption gasoline lighter than .6690 gravity dropped to 3,562,892 gal. valued at $223,984 in August from the July total of 6,853,143 gal. valued at $334,612.

Exports of gasoline and naphtha from Canada in August amounted to 31,761 gal. valued at $4,953 against 414,634 gal. valued at $42,545 in July.

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